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# TWO PATHS TO AN ADDITIVE FORM OF BILINGUALISM THROUGH INSTRUCTION IN FRENCH: AN EVALUATION OF THE ACADEMIC ACHIEVEMENT OF FRANCOPHONE STUDENTS ENROLLED IN THE PROGRAMME-CADRE-DE-FRANCAIS (PCDF) AT GRADES 4 AND 6

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# TWO PATHS TO AN ADDITIVE FORM OF BILINGUALISM THROUGH INSTRUCTION IN FRENCH: AN EVALUATION OF THE ACADEMIC ACHIEVEMENT OF FRANCOPHONE STUDENTS ENROLLED IN THE PROGRAMME-CADRE-DE-FRANCAIS (PCDF) AT GRADES 4 AND 6

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## Abstract

The purpose of this study was to investigate outcomes of a French program in a minority situation at grades four and six. This program, designed for children of Francophone families, offers instruction mainly in French. Nonetheless, two different samples were found in the program, a more French-oriented sample and a more English-oriented sample.

The investigation was undertaken to find out how these two subgroups achieve on measures of French and English reading. Francophone and Anglophone parents wish to know how well their children achieve in English compared to students instructed only in English, and further how well their children achieve in French compared to Francophone students in Quebec.

The study consisted of administering questionnaires to students and parents in order to assess the linguistic background, and of testing the two subgroups identified in the program, with measures of French and English. Since these two subgroups made up the sample under investigation, it was possible to examine claims advanced by researchers about two different ways of attaining bilingualism--additive and subtractive --for these two groups. The subjects were students at grades four and six enrolled in four schools from four metropolitan Vancouver, B.C. districts.

The effectiveness of the PCDP was examined by comparing the PCDP students' mean scores for three dependent variables--the "Gates-MacGinitie" test, the "Test de Lecture", and the "Test de Rendement"

with respectively, scores of English-speaking students enrolled in a Regular English Program, scores of English-speaking students enrolled in French Immersion Program, and scores of native-speakers of French enrolled in Quebec schools. Further comparisons were also attempted between the two subgroups' scores on these measures within the PCDF, as their results on these three tests were also analysed in relation to their home language use. The data were analysed using analyses of covariance with a cognitive ability test as the covariate.

The results of the analyses indicated that the PCDF was an effective learning experience for both subgroups. Both subgroups at grades four and six do not experience any setback in English, when compared to Regular English Program students (REP) on the Gates-MacGinitie. On the Test de Lecture, English-oriented students, at grades four and six, achieved as well as French Immersion students (FIP). The same results are also found for grade four French-oriented students, while the grade six French-oriented students achieved well above the 50th percentile score on the Test de Lecture. Compared to native-speakers of French, English-oriented students at grade four do not perform as well on the Test de Rendement whereas grade six English-oriented students, while evidencing an improvement, still do not score as well. Grade four French-oriented students also scored low on the Test de Rendement, while grade six achieved as well as native-speakers of French. Historical factors may account for the low scores of grade four French-oriented students. Furthermore, many students in the study have been in the PCDF for an average of only two years, limiting, therefore, the possibility of attaining high scores in French.

Recommendations for further research were proposed. For instance, the sample groups tested in this study should be retested in subsequent grades, thus providing a more accurate picture of the outcomes of the PCDF.

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# CHAPTER I

## Scope and Focus of the Study

### 1. Background of the Problem

A body of research has suggested two different ways of achieving bilingualism, depending on whether one belongs to the majority-language group or to the minority-language group. For the majority-language group, bilingualism will be achieved through the teaching of the second language, while for the minority-language group, bilingualism will be achieved through the teaching of the mother tongue. These two ways, while different, must fulfill the same essential condition in order to accomplish their common goal which is the attainment of bilingualism. The essential condition lies in the acquisition of an "additive" form of bilingualism. This concept has originated with Wallace Lambert (1975), after he had reviewed studies conducted in Singapore, South Africa, Switzerland, Israel, New York and Montreal indicating that bilingual children, relative to monolingual controls show a definite advantage on measures of "cognitive flexiblity," "creativity" or "divergent thought" (p. 65). He observed that these studies were comprised of bilinguals who were "adding" a second socially relevant language, the learning of which was not going to replace in any way, their own language.

In contrast, this researcher pointed out that other groups of children may experience a "subtractive" form of bilingualism. These children belong to ethnic minority groups, and "are forced, because of national policies and social pressures of various sorts, to put aside

their ethnic language for a national language" (p. 68). Lambert suggested that "the important educational task of the future (was) to transform the pressures on ethnic groups so that they can profit from an additive form of bilingualism" (p. 68).

This observation implies that if minority-language children do not put aside their ethnic language for the majority-language, they may experience an "additive" form of bilingualism. In other words, if minority-language children are taught in their mother tongue, their language being made the language of instruction in schools, they will develop a positive attitude towards the acquisition of the second language, since they will not feel threatened in their own language.

This "additive" form of bilingualism will be expressed in terms of high levels of competence in both languages. Cummins' (1979) evolved his hypotheses from Lambert's theory, and proposed

> "that there may be 'threshold' levels of linguistic competence which a bilingual child must attain both to avoid cognitive disadvantages and allow the potential benefits of becoming bilingual to influence his cognitive growth" (p. 42).

Studies conducted on majority-language children (Lambert & Tucker, 1972; Gray, 1981; Shapson & Day 1982) enrolled in second-language programs have shown that these students have attained high levels of bilingualism in both their mother tongue, and the second language. Therefore, they have reached this higher threshold of competence. These studies will be discussed in detail in the second chapter.

Cummins further, suggested that there may be two thresholds, a lower one and a higher one. While the attainment of the lower threshold

may not contribute to any negative cognitive effect, it may neither provide any impulse towards a cognitive growth. As a result a child whose development in both languages is equally poor, is not equipped to benefit fully of his educational environment through both languages. This situation is more descriptive of minority-language children who are enrolled in second-language programs as early as grade one. Studies conducted by Skutnabb-Kangas and Toukomaa (1976a) have found that Finnish students enrolled in Swedish comprehensive schools in Sweden, have developed a "semilingualism" described as knowing neither the mother tongue, nor the majority-language properly.

Cummins' (1978) second hypothesis emphasizes the mastery of the mother tongue as a prerequisite for the successful acquisition of a second language. This "developmental" hypothesis proposes that "the level of L2 competence which a bilingual child attains is a function of the level of the child's L1 competence at the time when intensive exposure to L2 begins" (p. 405).

Cummins commented that

> when L1 is adequately developed and reinforced by the child's environment outside of school as in the case of most middle-class Anglophone children in North American 'immersion' programs, intensive exposure to L2 is likely to result in high levels of L2 competence at no cost of L1 competence (p. 405).

In contrast, Cummins explained that

> when L1 is poorly developed, as in the case of many lower-class or disadvantaged children, intensive exposure to L2 can impede the continued development of L1 skills. In turn, the fact that L1 skills remain poorly developed, will exert a limiting effect on the development of L2 (p. 405).

Following Cummins' reasoning, a question springs to mind. With regard to minority-language children, if L1 is adequately taught in schools, and supported by the home environment, is it reasonable to assume that these children will eventually attain a high level of L2 competence? If they succeed, these students may be seen as having undertaken successfully the first step outlined in the "developmental" hypothesis, and being well equipped to engage in the second step described in the "threshold hypothesis."

Landry (1980) referring to Cummins' hypotheses (1979), indicates that bilingualism for minority-language children might not imply "subtractive" bilingualism but, if not properly taught in their mother tongue, children are likely to develop "semilingualism." Therefore, his observation implies that "additive" bilingualism reflected in the attainment of high "levels" of linguistic competence, upon the completion of the developmental stage, may be a possible expectation for minority-language children.

Is there any evidence confirming that minority-language children taught in their mother tongue achieve well in both languages? In Canada, Hébert et al. (1976), Carey and Cummins (1978), Ewanyshyn (1980) have found that when these children receive instruction in schools, in their L1, they achieve well in L1, and also in L2, since L2 is the language of the environment outside of the classroom. These studies will be paid more attention in the second chapter.

Another point worth investigating for minority-language children is their ability to transfer reading skills from L1 to L2. Lambert and

Tucker (1972), when conducting their study on French Immersion children, were interested in finding out

> whether children in French Immersion would be able to transfer and relate notions developed through French into already known English concepts, to note and make use of contrasts, and similarities in the structures of French and English, and to generalize the reading skills they have established in French to English (p. 35).

The results of the study have confirmed their expectations. Children in this program showed that they have developed techniques on their own for transferring reading skills from French (L2) to English (L1).

Lambert and Tucker (1972) were concerned about majority-language students, and their ability to transfer skills from a weaker language to their own language. One wonders if this transfer takes place for minority-language children, or put more specifically, if the children taught in their mother tongue develop techniques on their own for transferring reading skills from French (L1) to English (L2). Research aforementioned, conducted on minority-language children have indicated that these children are successful in learning two languages. In this event, an interesting parallel may be drawn between these two groups, in relation with this process called "transfer of skills."

It may be suggested that the two groups experience the process, at the same level of efficiency, using two different ways. For majority-language children, the process takes place through their weaker language, while for minority-language children, the process takes place through their dominant language. Research (Skutnabb-Kangas & Toukomaa, 1976a; Bratt-Paulston, 1975) has indicated that this transfer of skills

does not operate when minority-language children are taught in their weaker language. What does account for this difference?

Researchers such as Vorih and Rosier (1978) and Saville and Troike (reported in P.E. Engle 1975) have noticed that minority-language children who are taught in their mother tongue, develop a pride in their language, self assertiveness, and eagerness to learn a second language, thereby, "adding" a new language instead of "rejecting" or "subtracting" it. This positive attitude towards the second language may lay foundations for the development of a transfer of skills.

Different concepts such as "additive" bilingualism, "threshold" and "developmental" hypotheses, "transfer of skills" have been explained so far, but will take another dimension when situated in a real context. The "Statement of the Problem" below will sort out the features of the study, and will relate them to the concepts already defined.

## 2. Statement of the Problem

As mentioned previously, two forms of bilingualism may develop, an "additive" form or a "subtractive" form. The "additive" form is deemed to lead to a high threshold of bilingualism, and also to stimulate a transfer of skills across languages. The "subtractive" form is believed to limit one person to a low threshold of linguistic competence, and to produce "semilingualism." While the "additive" form, and its corollary have been assumed to be the privilege of the majority-language children, the "subtractive" form, and its pendant were associated with the status of "minority-language children" (Skutnabb-Kangas & Toukomaa, 1976a; Toukooma & Lasonen, 1979).

However, a new trend emerged from recent studies (Vorih & Rocier, 1978; Carey & Cummins 1978; Ewanyshyn 1980) conducted on minority-language children. These studies have suggested that the benefits of an "additive" form of bilingualism were not only reserved for majority-language children, but that, under special conditions, these advantages could be also the lot of the minority-language children. These special conditions according to these researchers may be contained in one major realization which is the teaching of the mother tongue.

From this perspective, it may be reasonable to assume that a program of instruction which offers the teaching of the mother tongue to minority-language children will promote a high level of linguistic skills. In the event that this program also hosts a majority-language population, the same results will be then expected, since these students will be attending a program of instruction in a second language following a deliberate choice.

Building on this reasoning, it may be hypothesized that both groups will evidence a transfer of skills across their languages. The language of instruction being French, English-speaking children will therefore, transfer linguistic skills from their L2 (French) to their L1 (English), while French-speaking children will transfer linguistic skills from their L1 (French) to their L2 (English). The difference between the two processes lies in the status each language enjoys. For majority-language students, their language is widely used outside of the classroom and consequently does not need to be reinforced in a school situation, while for minority-language students, their language is not given

the same consideration in the milieu at large, and, therefore, needs to be rehabilitated in an academic milieu. When this condition is realized, then minority-language children instructed in their mother tongue, and majority-language children instructed in their second language should benefit fully from the same learning experience.

In British Columbia, a program called the "Programme-Cadre-de-Francais" offers instruction mainly in French. The program was designed for Francophone families which represent a linguistic minority in B.C., since the dominant language is English. From the arguments debated previously, the students should be placed in a favorable situation to experience a form of "additive" bilingualism, to transfer skills from French to English, and as a result to attain a high threshold of linguistic competence.

Since the program has accepted Anglophone children, for reasons that are explained in Chapter 3, these students are expected to "add" a socially relevant language to their own, and to benefit also from the advantages associated to this particular situation.

The "Programme-Cadre-de-Francais" should, on the basis of the studies already mentioned, promote a high level of linguistic skills for both minority and majority-language groups.

This level of linguistic skill may be expected in their academic performance. Because French and English children in the PCDF have different home language backgrounds, differences may occur in the relative performance of these two groups on tests of English skills and tests of French skills. In this study, separate hypotheses will be formulated concerning children in each group.

The questions formulated below will help to circumscribe the issues at stake in the PCDF study. A major question will be addressed, followed by subsidiary ones.

Main Question

In an Anglophone milieu, will a child whose linguistic background is French-oriented, and who is mainly instructed in French throughout his Elementary school, perform as well on English Reading Comprehension and English Vocabulary tests as a child whose linguistic background is English-oriented and who is mainly instructed in English?

Subsidiary Ones

Will a child whose linguistic background is English oriented, and who is mainly instructed in French throughout his Elementary school, perform as well as a child who comes from the same linguistic background, but is only instructed in English on English Reading Comprehension and English Vocabulary tests?

Will two children, whose linguistic background for one is more French-oriented, and for the other more English-oriented, and who are mainly instructed in French throughout Elementary school, perform at the same level on English Reading Comprehension and English Vocabulary tests?

Will a child whose linguistic background is English-oriented, and who is mainly instructed in French perform as well as a child whose linguistic background is French-oriented, and who receives the same

program of instruction, on French Vocabulary and French Reading Comprehension?

On a measure of French, will a child whose linguistic background is French, and who is attending a PCDF program throughout his Elementary school perform differently from a child whose linguistic background is English but who is attending a French Immersion Program? Will there be a significant difference between these two groups at grade six on a measure of French as a result of exposure to program?

Will a child whose mother tongue is English, and who is attending a PCDF program throughout his Elementary school years, perform higher on a French test than a child from the same linguistic background but who is attending French Immersion Program? Will there be a difference between these two groups at grade six on a French measure as a result of exposure to program?

Will children enrolled in the Programme-Cadre-de-Francais perform differently at grade six than children enrolled in the Regular English Program on English Reading Comprehension and English Vocabulary tests as a result of exposure to program?

## 3. Definition of Terms

Programme-Cadre-de Francais: (PCDF) is a program designed for Francophone students (the son or daughter of a francophone parent or guardian, where one or both spouses or guardians are Francophone). French is used as the exclusive language of instruction, in all but English Language Arts, which in terms of percentage represents 80% of instructional time.

Early French Immersion: (EIP) This program is designed for English-speaking children who wish to learn French as a second language. For this study, EIP group represents a set of norms in a test manual. The norming group is defined as follows in the "Test de Lecture" manual (Barik & Swain): "Predominantly English-speaking students mostly from Ontario, Quebec, New-Brunswick, and Manitoba" (p. 2 in Test Manual).

Regular English Program: (REP) For this study, REP group is a set of norms in a test manual. The norming group is defined as follows in the "Gates MacGinitie" manual: "A proportional representation of English-speaking students living in different parts of the country, in different urban or non-urban settings, and from different types of schools" (p. 35, in the Test Manual).

Semilingualism: Occurs when students involved in second language acquisition score lower on written measures, than native-speakers of their first language, when assessed in their mother tongue. Further, they score lower than native-speakers of a second language when assessed in this language, after initial differences such as non-verbal measures of intelligence and socioeconomic status have been statistically controlled.

Balanced bilingual: A child is said to be a balanced bilingual when "he is equally skilled in oral and written French and English" (Peal & Lambert 1962).

Developmental hypothesis: "The development of skills in a second language is a function of skills already developed in the first language" (Cummins 1977-1978).

Threshold hypothesis: "There is a threshold level of second language competence which pupils must attain, both in order to avoid disadvantages and allow the potentially beneficial aspects of becoming bilingual to influence their cognitive functioning" (Cummins 1977-1978).

French-Oriented student: The son or daughter of a Francophone parent or guardian, where one or both spouses or guardians are Francophone, and whose answers on a questionnaire (see Appendix B) in the item relative to the frequency of the use of French at home were "always", and "half French, half English".

English-oriented student: A child who comes from a family where both parents/guardians are Anglophone. Furthermore, parents whether French or English who answered on the Parents Home Background questionnaires that French was spoken at home "sometimes" or "never" were also included in this category.

Home Language Use: The language spoken most of the time at home. In terms of percentage, it means more than 50%.

L1: first language or mother tongue.

L2: second language.

## 4. Hypotheses

Before stating each hypothesis, it may be helpful to provide the reader with some information on what are the independent and the dependent variables. In this study, the independent variables are linguistic background, in other words the home language use—a categorical variable with two "levels"--English-oriented and French-oriented - and grade - a

second categorical variable with two levels, four and six. The dependent variables are scores on French and English tests. The French tests used are the Test de Lecture and the Test de Rendement. The English test used is the Gates-MacGinitie Reading Test.

The first hypothesis relates to the major question and reads as follows:

1. There will be no significant difference on a measure of English achievement. The French-oriented subgroup in Programme-Cadre-de-Francais (PCDF) will achieve as well as a norm group of English students in the Regular English Program (REP).

The following hypotheses relate to the subsidiary questions:

2. There will be no significant difference on a measure of English achievement between the English-oriented subgroup in Programme-Cadre-de-Francais (PCDF) and a norm group of English students in the Regular English Program (REP).

3. There will be no significant difference on a measure of English achievement between the French-oriented subgroup in the Programme-Cadre-de-Francais (PCDF) and the English-oriented subgroup in the Programme-Cadre-de-Francais (PCDF).

4. On a measure of French achievement, the French-oriented subgroup in the Programme-Cadre-de-Francais (PCDF) will achieve significantly higher than the English-oriented subgroup in theProgramme-Cadre-de-Francais (PCDF), controlling for ability.

5. On a measure of French achievement, the French-oriented subgroup in the Programme-Cadre-de-Francais (PCDF) will achieve higher than a norm group of English students in the French Immersion Program (EIP).

6. There will be a significant difference on a measure of French achievement. The English-oriented subgroup on the Programme-Cadre-de-Francais (PCDF) will achieve higher than a norm group of English students in the French Immersion Program (EIP).

7. There will be a significant difference as a result of exposure to the Programme-Cadre-de-Francais (PCDF) on a measure of French achievement. Both subgroups, French-oriented and English-oriented students, in this program, at grade six, will achieve higher than a norm group of English students in the French Immersion Program (EIP).

8. There will be no significant difference as a result of exposure to the Programme-Cadre-de-Francais (PCDF) on a measure of English achievement. Both subgroups, French-oriented and English-oriented students, in this program, at grade six, will do as well as a norm group of English students in the Regular English Program (REP).

Further comparisons will be attempted, but since they do not bear the same importance as the issues raised in this chapter, they will be treated in Chapter 3.

# CHAPTER II

## Review of Related Literature

### 1. Review of Previous Research

This review will report studies conducted among majority-language students enrolled in second language acquisition, and minority-language students enrolled in schools where their mother tongue is made the language of instruction. The results will be reported and will be related to the effects of an "additive" or "subtractive" form of bilingualism.

a) Majority-language children enrolled in second language programs of instruction:

Lambert & Tucker (1972) have reported on the bilingual education of children in St. Lambert, Quebec. In this program, English-speaking children were introduced to French in kindergarten or grade one and received 90% of their instruction in these grades in French. From grade two on, about 60% of the school program was conducted in French, and 40% in English.

After a five-year assessment period, the researchers were satisfied that

> the Experimental program has resulted in no native language or subject matter (i.e., arithmetic) deficit or retardation of any sort, nor is there any cognitive retardation attributable to participation in the program. In French, the Experimental group has acquired a thorough mastery of the basic elements of French phonology, morphology, and syntax, and can speak and communicate in French without the inhibition or hesitation that so often characterizes the typical student of a foreign or second language (p. 152).

The researchers, in an attempt to explain these impressive results, suggested that a process called "the transfer of skills across languages" was in operation for immersion" children. The authors referred to this process as being of higher-order skills of reading and calculating, which (although) developed exclusively through the medium of French, seemed to be equally well and almost simultaneously developed in English." (p.208)

Another longitudinal study has been conducted by Gray in New Brunswick (1981). This study was selected because of a major difference in the time allotted to the use of French as the language of instruction. Anglophone students in this Immersion Program used French 100% of the time from grades one through four a practice which makes this program exceptional. Gray evaluated the French and English achievement of grade six students enrolled in the Immersion Program. Students' scores were compared to those of unilingual English-speaking in Fredericton, bilingual French-speaking children, in Fredericton, and unilingual French-speaking children, in Edmunston.

The researcher found that the performance of the immersion children in English, with the exception of spelling, was comparable to that of their peers who had been educated in English. In French, in comparison with native French-speaking children, the grade six immersion children performed at about the fifth grade level in French Language Arts and slightly lower than the third of fifth grade levels in French linguistic skills.

These results led the author to observe that the students very quickly achieved parity in English reading and writing skills with the

students in the English-only program even though they had been taught to read and write exclusively in French from grade one on, but were still behind their peers from Francophone families. Gray suggested that the difference resided in the students' competence in the language itself. On English tests, these immersion students were reading and writing in a language that they knew very well; on the other hand, their French language oral skills were weaker than their academic skills and on the tests in French they were reading and writing in a language they had not yet mastered.

This observation is of interest for the current study since the two groups involved are representative of different areas of linguistic competence. The French-oriented group may be expected to have mastered the French language and the English-oriented group to have mastered the English language. Pursuing this reasoning, one might speculate that when tested in French, the French-oriented group will be reading and writing in a language they have mastered, and, on the other hand, when the English-oriented group will be reading and writing in English, they will be functioning in a language they have mastered. Further, it may be hypothesized that the English-oriented group will score higher in English and lower in French than the French-oriented group and vice versa.

However, the above situation is more complicated, because it is not proven certain that a large number of Francophone families in B.C. have kept their language alive and have resisted the pressure to switch to the dominant-language. With regard to the English-oriented group, this

difference in the home language pattern is not noticeable. On the contrary, there is no need for the latter group to switch languages in any context, as the language of the large community is theirs. To complete this brief overview of French Immersion studies, one more research study will be presented. This research has an added aspect of interest as it was conducted here in British Columbia. Shapson and Day (1982) surveyed French Immersion students in B.C., who formed the Experimental group, and compared them to Unilingual English-speaking students, who composed the control group.

They found that French Immersion students

> were equivalent to their peers in the Regular English program in mathematics, and despite the characteristic initial lags in English language skills in grades one and two, they attained equivalence with their peers in these skills soon after English language arts were introduced into the curriculum in grade three (p. 13).

Although no direct comparison was attempted with unilingual French-speaking students, the use of the Test de Rendement de Francais standardized on French-speaking students in Montreal, enabled the researchers to get an idea of the performance of the Experimental group in French. They observed that their level of achievement in French language arts in grade four (24th - 39th percentile equivalent range, stanine 4) appeared to be similar to those reported for some of the Immersion Programs in more bilingual regions of Canada.

However, the researchers expressed their concerns about the decline observed in French achievement scores after grade three, when the amount of exposure to French was reduced by 25% in grade three, and by 50% in

grades four to six. They suggested that some measures with regard to curriculum, instruction, reinforcement outside of the classroom should be researched.

These results were consistent with the trend observed in previous studies, and are expected to be confirmed in the present study for the English-oriented subgroup. However, the context is different, since the English-oriented subgroup in the Programme-Cadre-de-Francais (PCDF), could benefit from the presence of the French-oriented subgroup, and therefore, should score higher in French, than the French Immersion students. In the eventuality that they score at the same level or lower, the explanation could lie in either the academic or the environmental history of the subjects.

b) Minority - language children enrolled in first language programs of instruction:

Skutnabb - Kangas and Toukomaa (1976b) were interested in the linguistic level and development in both their mother tongue and Swedish of Finnish migrant children attending Swedish comprehensive school. The total number of subjects studied was 687 enrolled in grades one up to nine. However, only grades one up to six will be considered because of their relevance to the present study.

In two different towns, Olofström and Gothenburg, programs representative of two educational practices were investigated. In Gothenburg, students were given instruction in their mother tongue for a total of two hours a week, while in Olofström, the main emphasis in migrant instruction was on teaching Swedish.

Finnish migrant pupils in grades one to six were tested in vocabulary, synonyms word groups for the verbal tests and on perceptual speed and audition for the non-verbal tests. Those tests were chosen from a Finnish version. The Finnish migrant pupils in grades one to six in Olofström were also tested with Swedish tests standardized in Sweden, using Swedish instructions. In Gothenburg, some of the Finnish pupils were tested with a battery aimed at measuring the Swedish skills of migrant pupils.

According to the test results, skills in Finnish were quite poor in both Olofström and Gothenburg. Gothenburg, students however, proved to be much better on synonyms tests and on word group tests representing verbal reasoning. In the tests which measured Swedish-language skills, the results were just as poor as in the Finnish-language test in both schools.

The authors concluded that in

> verbal development--especially in understanding verbal relations, retention of concepts and understanding --the migrant children who attend classes in the foreign language in the lower and upper level of comprehensive school are on average on the same level as the 10% of weakest pupils among normal material. This verbal retardation occurs in both the foreign language and the mother tongue (p. 78).

On these premises, the authors suggested that the threat of semilingualism experienced by the students under investigation, "can be averted by giving migrant children at pre-school age and children in the lower level of comprehensive school intensive teaching in the mother tongue" (p. 80). They added that "the school instruction proper should be given in the mother tongue and instruction in writing the foreign

language should be postponed to the age of nine to ten, when the probability of achieving true bilingualism would be most likely" (p. 80).

In the same vein, Toukomaa and Lasonen (1979) conducted a study on the literacy of Finnish immigrant pupils in Sweden enrolled in three different models of education described below:

> 1) The instruction can primarily be given through the medium of Swedish, in a Swedish-speaking class, together with Swedish pupils, and usually with two hours instruction per week in the mother tongue as a subject.
>
> 2) The instruction can also take place in classes with 2 teachers, with both Swedish pupils (with a Swedish teacher) and immigrant pupils from one nationality only (with a teacher from that nationality). The pupils in these compound classes are taught separately, each group in its mother tongue, for a part of time. The proportion of Swedish-medium instruction increases quite rapidly, until all instruction takes place through the medium of Swedish.
>
> 3) The instruction can also primarily be given in the native tongue of the pupils, with Swedish as a second language (p. 1).

The population of the study was the Finnish immigrant pupils in grades three to six of the Norrkoping Comprehensive School. All the subjects were from working class families. These students had the opportunity of choosing among the three programs of instruction described above. The main emphasis of this study was on reading in the mother tongue (Finnish), but the author tested also a number of the subjects with reading tests in Swedish. They further investigated "the relationship between literacy in Finnish and in Swedish as well as the effects of some background and talent factors on literacy" (p. 9).

"Reading ability in the mother tongue, Finnish, was measured by means of a reading test developed by Vähäpassi (1977). The test is

intended for the third grade pupils (10 years of age) of the Finnish comprehensive school" (p. 11). The norms of the third grade children living in Finland were also used for the fourth to sixth grade immigrant children. "Reading the Swedish language was measured by a test developed by Brunell (1975) for fourth to sixth grade pupils attending the Finnish comprehensive school who speak Swedish as their mother tongue" (p. 11).

The authors found that "among the Finnish pupils attending Swedish-medium classes the backwardness was more than three years in Finnish language reading, and one to two years in reading Swedish. In this study, teaching in the mother tongue (Finnish-medium classes), proved to be preferable to compound teaching from the point of view of reading, at least up to the third grade. For older groups, no results exist as far as this matter in concerned, since Finnish-medium classes, at the time of the study only existed in grades one to three. Teaching in compound classes seems to provide readiness for correct recognition reading, but not for a deeper, evaluative kind of reading (p. 23).

Toukomaa and Lasonen discovered that on the reading tests, "the immigrant pupils were heterogeneous in the level of their achievement. As a consequence, each age-group should be provided with different level teaching material" (p. 24). They suggested that "the text should be linguistically easier than material for children of a corresponding age in Finland, adding that the teaching material for sixth grade immigrant pupils should be linguistically at the same level as books for third graders in Finland, but the content should correspond to their own age-

group. They, also indicated that the good readers, on the other hand should be provided with more difficult teaching material" (p. 24).

The authors also conducted a partial correlation between the Finnish and Swedish language test scores with length of residence in Sweden and general intelligence controlled. They discovered that even with this process of equalization, the correlations between literacy scores in Finnish and scores on the Swedish language reading tests remained statistically significant.

In conclusion, the authors gave support to Anderson (1978) and Christian (1976) who advocated the teaching of literacy and writing in the mother tongue before school entry for immigrant children in a bilingual environment. The situation, the Finnish students experience in Sweden may be compared to the situation experienced by Francophone students in B.C., with some differences.

The two populations involved are not completely identical. The Finnish migrant population expects to come back to its homeland, and therefore will tend to group together in the host country, thereby, increasing its chances to preserve its mother tongue. Since the population plans to function fully in its heritage culture, its mother tongue must remain intact.

However, these reasons do not generate the same response in Francophone families in British Columbia. The rate of assimilation is high since some of the families have been in B.C. for more than 15 years, and the newcomers intend to earn a living in the host country. Only a small number of families will likely return home, since the proximity of the

two homelands is not the same as the one which exists between Sweden and Finland. From Skutnabb-Kangas and Toukomaa (1976b) as well as from Toukomaa and Lasonen (1979), it may be suggested that the program investigated in B.C. with its emphasis on the teaching of the mother tongue should produce positive results, should prevent semilingualism, and should promote "true" bilingualism.

Vorih and Rosier (1978) have investigated the outcomes of a Bilingual Elementary School Program implemented in Rock Point Arizona for Navajo children. The authors indicated that:

> Navajo (was) the dominant language of communication at Rock Point and at most places on the reservation, other than border towns. A Navajo (could) get along very well on the reservation without speaking English. It was only when the Navajo (was) at school or when he (left) the reservation that he (needed) to know English (p. 263).

The authors explained that in 1960, students from Rock Point Community were found to rank at the bottom among eight Bureau of Indian Affairs schools in the Chinle Agency, in student achievement as measured by standardized tests. Therefore, an intensive program called "Teaching of English as a second language" (TESL) was instituted in 1963.

> By 1965, standardized tests showed that Rock Point had moved to the top in the ranking of Chinle Agency schools had that Rock Point student results were well above the average of the entire Navajo Area. However, Rock Point sixth grade students were still a two full years below the national norms in reading and mathematics (p. 263).

Concerned with this weakness shown by grade six students, the Rock Point administration had been investigating bilingual-bicultural education in order to find a remedy to this situation. A program was eventually implemented and was structured as follows:

> From Kindergarten through second grade, the classrooms were organized into language areas. A team of two teachers (three in kindergarten) (was) in each classroom. One teacher used Navajo as the medium of instruction and all communication (was) in Navajo: social conversation with students, calendar, alphabet, picture word cards, and Navajo literacy. At the opposite end of the room, the teacher (used) English as the medium of instruction and communication (was) in English. The children were learning to choose the language to meet the situation. They (were) learning to be co-ordinate bilinguals (p. 264).

They added that:

> From grades three through six, the English Language Teacher, who (was) either Navajo or Anglo (had) complete responsibility for his or her classroom. The average number of students per classroom (was) 25, but the children (left) the room in half-class groups to attend speciality classes such as Navajo literacy or science taught in Navajo.

The time spent in each language varies, depending on grade level,for instance:

in Kindergarten: 70% of the instruction is in Navajo;

1st and 2nd grade: 50% of the instruction is in Navajo and 50% is in English;

3rd to 7th grade: 75% of the instruction time is in English.

Rock Point children who initially learned to read in English were compared to Rock Point children who learned to read in Navajo first. The measures used were the Stanford Achievement reading sub-tests. The results of students in Bilingual Program at grades two, five and six exceeded the results of students in the TESL program while at grade four, the results were equivalent, and at grade three, the TESL group scored slightly higher. When compared with the achievement of Navajo students attending monolingual English programs with well established

TESL curriculum, the Rock Point students' performance was slightly lower at grade two, equal at grade three, and increasingly higher from grade four on, ending up with a difference of almost two years higher than the control schools mean score.

The program was demonstrated to be effective. The proponents of this program felt that it was only logical to have the major portion of the instructional time in kindergarten in a language the children understand. They stressed the fact that "if Navajo children are to be given a quality education, then their cognitive skills must be developed as thoroughly, and in the same manner, as those of Anglo-children in their mother tongue" (p. 264).

This study suggests the importance of educating minority-language children in their mother tongue for the purpose of a successful second language acquisition. However, this study should be interpreted with caution, since the study does not mention whether initial differences on intelligence and socio-economic status between the Experimental and control groups were controlled.

Moreover, a strong parental commitment has been observed from the beginning of this program, suggesting that a "Hawthorne" effect may have taken place.

The findings cannot be considered impressive because of these flaws and because of one other feature of the program: the Navajo students were exposed to English for 50% of the instructional time in grades one and two, and for 75% of the instructional time from grade three to grade seven. The following question springs to mind. Would these results

have remained the same, had these students been instructed in English for 20% of the instructional time, which is the treatment the students in the PCDF program are exposed to?

On this matter, one might argue that Navajo students needed to receive more English instruction, since they were not exposed to English outside of the classroom, in contrast to Francophone students in B.C. This point is legitimate and deserves to be considered. However, another important feature worth mentioning is the difference in the linguistic background between the comparison groups in the Rock Point study, and in the B.C. study. While the comparison groups in the former study come from quite the same linguistic background, the two groups compared in the latter one come from two different home language backgrounds, this situation accounting for a considerable difference.

Nevertheless, the study in Rock Point community School is still of interest. The authors described the students at Rock Point as "aggressive, active and involved," and added that this behavior was in sharp contrast to the way Navajo children are often characterized as being "listless, quiet, passive and dumb" (p. 268).

Ewanyshyn (1980) conducted an evaluation of an Ukrainian-English bilingual program. This program was implemented in the fall of 1974, and was designed to provide students with the opportunity to learn the Ukranian language as a "language of instruction," along with acquiring English language communication skills.

The author explained that:

> In kindergarten, emphasis is given to the development of oral skills in both English and Ukrainian. In grades one to five,

> children take regular instruction in English in the academic subject areas for approximately 50% of the school day, and instruction in Ukrainian in the cultural subject areas for the balance of the day (p. 5).

The experimental groups of students enrolled in the Ukrainian-English Bilingual Program in three of the Edmonton Catholic schools were matched with control groups of students enrolled in the Regular English Program and coming from the same schools or from neighboring schools. Five variables were considered: Grade, sex, age, Primary Ability score, and socio-economic status. Four grades were evaluated: two, three, four and five. The instruments selected were: Canadian Test of Basic Skills (CTBS), Gates-MacGinitie Reading (Vocabulary and Comprehension), Science Research Associates (SRA) Arithmetic Test, School System Spelling and Ukrainian Language Skills tests. The .05 level of significance was used in testing the differences between the means, and a two-tailed test of significance was used in the analysis.

The results indicated that no significant mean differences were evident on the vocabulary tests at the grade five, grade three and grade two levels. At the Grade two level, however, the results indicated that the mean on the Comprehension test for the bilingual program students was significantly higher than the mean for the regular program students. Results on mathematics achievement will not be reported, since this area is not covered by the current study.

This study corroborates the findings of Rock Point Community study. Meanwhile, as pointed out in that study, the results mentioned above are not so impressive, since the students are provided with English instruction in the academic subject areas while the mother

tongue is restricted to the cultural subjects areas. Also, as the English measures used are testing academic subject areas, how reasonable is it to expect a significant difference between the two groups?

For these reasons, the study does not bear the same credibility with regard to the benefit of the teaching of the mother tongue to minority-language children as the following one which deals with instruction in the mother tongue for most of the school day.

This study has been brought up for the purpose of establishing a distinction betwen different forms of bilingual programs. According to Fishman's (1976) four categories of Bilingual Education Programs, this Ukrainian-English program will be classified as: "A program (seeking) fluency and literacy in both languages, but literacy in the mother tongue is restricted to certain subject matter, most generally that related to the ethnic group and its cultural heritage" (p. 26). One may foresee the danger of this type of bilingual program as being a means towards a gradual extinction of the first language.

Carey and Cummins (1978), examined the achievement in English and French in Edmonton of all Grade five children from English, French and Mixed French-English home backgrounds attending the French/English bilingual program of the Edmonton Separate School System (ESSS). The program is based on an 80%/20% split between French and English instruction throughout elementary school.

The researchers used Cloze French and English tests which enabled them to establish parallels with the Lapkin and Swain (1977) study.

The study encompassed unilingual francophone from Quebec, Franco-Ontarian children, and children in French Immersion Programs in Ontario. The French scores of the three ESSS groups were compared with the scores of unilingual francophone children from Quebec, Franco-Ontarian children, and children in French Immersion Programs while the English scores were compared with those of children in French Immersion and Regular English Programs in Ontario. The authors conducted two-tailed t-tests and found

> a significant difference ($p < .05$) between the French and English home background groups on the French Cloze test, but no difference on the English Cloze test. The ESSS French group performed at about the same level in French as did the Franco-Ontarian group (attending separate francophone schools), but less well than Quebec francophone groups. All three ESSS groups performed at about the same level on the English Cloze tests as the two Ontario groups (p. 46).

These results led the authors to suggest that even though the ESSS "French" children did not speak English at home and received 80% of their instruction in French, their skills in English were as well developed as those of equivalent anglophone children in French Immersion or Regular English Programs.

This study has a lot in common with the present study as the population, program and objectives are almost the same. However, differences exist in the measures employed, and in the statistical procedures. The researchers used a Cloze test in French and English to assess the students linguistic abilities, while the study under way will choose more conservative measures, such as the Gates-MacGinitie, the "Test de Rendement de Francais," and the "Test de Lecture." Carey

and Cummins favored a two-tailed t test, while the current study will be conducting an analysis of Covariance with cognitive ability as covariate. In the case that the results contradict themselves, then, these different measures would have to be considered.

In the same vein, Hébert et al, (1976) evaluated the Academic Achievement and Language of Instruction among Franco-Manitoban Pupils. Different amounts of exposure to French were examined. The authors concluded that if:

> One had to define the school situation which would provide maximum academic achievement in the two languages, it is necessary, based upon the research findings, to choose the school or class where French only is used as the language of instruction (except for the English course) (p. 21).

However, the conclusion should be taken with reservations as recommended by M.P. Yakimishyn (1976) and Maurice and Roy (1976, 1977). A substantial variation in treatment quantity, a failure to categorize the different language backgrounds, as well as weaknesses in statistical procedures limit the generalizability of these findings. As examples of flaws in statistical procedures, Yakimishyn (1976) has pointed out that the correlation coefficients and analyses of covariances were not correctly interpreted, thus leading to an overestimation of the results. For instance,

> one correlation coefficient was .4287, and was considered statistically significant at the .001 level. However $r^2$ = $(.4287)^2$ = 18%, indicating that 18% of the variance in one variable can be accounted for by the variance in the other variable, which is considered low predictability or association.

Yakimishyn (1976) also indicated that analyses of covariance were incomplete as the authors should have conducted additional analyses using appropriate multiple comparison procedures to identify the pairs of means which are significantly different.

Based on these authors' findings, the PCDF program under investigation in B.C. should provide maximum academic achievement in both languages, since students in this program are provided with a percentage of French instruction comparable to the maximum amount in their study.

The authors further suggested that

> in Manitoba, a society which is overwhelmingly anglophone and where French is the language which is difficult to preserve, school programmes having a high percentage ofinstruction in French offer the best possibility of ensuring effective bilingualism among children, combined with high achievement in other academic subjects (p. 22).

The linguistic situation described by the authors applies also to B.C., where French is also difficult to preserve. In this context, a program such as PCDF should ensure effective bilingualism among children.

2. Summary of the State of the Art:

The studies reported above show the possibility for both majority-language children and minority-language children to achieve bilingualism.

A body of research (Lambert & Tucker, 1972; Gray 1981; Shapson & Day, 1982) has found that majority-language children achieve high levels of linguistic competence in both languages, when exposed to a second language in schools. It has been proposed that the students, since they

come from a community where their language is highly valued do not need a reinforcement of their language in schools, and as a result, wish to "add" a second socially relevant language. The second language is not going to replace the first one. Therefore, the students show a positive attitude, and are in the best position to acquire successfully a second language. For the students, it has been hypothesized that they transfer skills from their language to the second language. In practice, this means that even if the students are not exposed to formal instruction in their first language, they perform as well as their peers who attend schools in their first language. In other words, these students are able to transfer and relate notions developed through a second language into already known concepts in their first language.

For these students, a program of instruction in a second language should take them to a high level of bilingualism. In relation to the current study it is assumed that majority-language children enrolled in a program such as PCDF which offers instruction in their second language, should succeed well in both languages, French and English.

Another body of research (Vorih & Rosier, 1978; Carey & Cummins, 1978; Ewanyshyn, 1980) has discovered that minority-language children have also the possibility of achieving high levels of linguistic competence in their first and second languages. It has been suggested that since the students do not have their first language valued outside of their home, they need to see its recognition somewhere else. A school situation which acknowledges the importance of the mother tongue for the minority-language children by making it the language of instruction,

gives the children a pride, a self-assertiveness. Consequently, the children may express a desire to "add" another language to their own, since they do not feel that their own language will be replaced. The positive attitude will trigger a transfer of skills from their L1 to their L2. In practice, these children will be expected to succeed in both languages. Even though, these children are not exposed to formal English instruction, it is proposed that they will succeed as well as children in the Regular English Program. It has to be mentioned that outside of the classroom, these students are immersed in an "Anglophone" milieu. For these students, a program of instruction in their first language such as the FCDF in B.C. should promote a high level of bilingualism.

In conclusion, the program called the FCDF in B.C. should bring students from a majority-language group as well as from a minority-language group towards the goal of bilingualism. This program provides both groups according to the researchers mentioned above with the ideal situation for developing high levels of linguistic competence.

# CHAPTER III

## Methodology

### 1. Description of Programs:

#### Description of the Programme-Cadre-de-Francais:

In the fall of 1978, the B.C. Ministry of Education offered Francophone families in B.C. the option of the Programme-Cadre-de-Francais (PCDF) for their children's education. This program was designed to provide students with the opportunity to learn French by using it as a "language of instruction."

A consequence of defining the target population in this way is that the program serves children with vastly different levels of French ability going from no understanding at all of French, when the child comes from a family where the Francophone person works out to a fairly good command of French where both parents are francophone or where the Francophone person stays at home.

#### Description of other programs to which the program under investigation will be compared

##### Early French Immersion:

Such programs in Canada typically involve instruction of English-speaking children in French according to the following schedule: in kindergarten, the entire half-day in French: in grades one to four, the full program in French except for one hour per day of instruction in English Language Arts, which is introduced in either grade two or grade three; and in higher grades, with some further

> instruction in English, eventually a 50% French/50% English program, generally by grade six" ... The Tests de Lecture battery was developed in the context of the longitudinal evaluation of French immersion and bilingual education programs in Ontario (p. 1 Test de Lecture).

Regular English Program: (REP) English is the language of instruction for all content English area classes. As indicated in the first chapter norms of students drawn from a Canadian sample have been used in the current study.

Distinctive characteristics for the PCDF compared to FIP and REP groups: In the PCDF, teachers teach children of different grades in the same classroom. The enrollment in each grade varies from two or three to 10 or 12 students. A class may include all grades in the elementary school from Kindergarten to grade seven. Regulations state that where there are 10 Francophone students of elementary school age, a class shall be established. If there are 25 students registered in the group, two teachers are required; with 45 students, three teachers; with 60 students, four teachers.

In the study, this phenomenon accounted for seven out of eight classes involved. Only one grade four classroom dealt with a single grade level.

2. Description of the subjects:

The subjects in this study were grades four and six students from eight classes of PCDF. Four schools were involved representing one from each of four metropolitan Vancouver districts. Sixty-three students encompassing 38 girls and 25 boys coming from either English-speaking or

French-speaking families made up the population under investigation. The following table provides information about the distribution of the students:

Table 1

Distribution of students by grade, sex and linguistic background

| | Grade 4 (n = 34) | | Grade 6 (n = 29) | |
|---|---|---|---|---|
| Linguistic background | Girls | Boys | Girls | Boys |
| French (n = 29) | 6 | 8 | 9 | 6 |
| English (n = 34) | 11 | 9 | 10 | 4 |

Among the schools investigated, one out of four offered PCDF, FIP and also REP; two offered PCDF and FIP, while FIP was just given in the lower grades; and one school only offered the PCDF to the exclusion of other programs. Teachers with the exception of one are native speakers of French. The neighborhood in which the schools are located is not a good indicator of the socio-economic status, since some students live far away, and use common or private transportation to get to schools.

Control of Independent Variables:

Linguistic Background: Students were given a questionnaire to assess this variable. (see Appendix A). The questions emphasized their

use of French at home in different situations, for instance, with their parents, their siblings, and their friends.

The results on the students' questionnaires show that 42.8% of the parents of grade four French-oriented students speak always in English when talking to each other, while at grade six, this proportion of parents drops to 26.7%, suggesting that the parents of grade six French-oriented students are using more French in their conversation with each other. Another point worth mentioning is the proportion of French-oriented students at grade four, 57.1% who speak always in English when playing with friends at home compared to 73.3% of grade six French-oriented students who claimed to speak always in English in the same situation.

A trend may be indicated in the direction of a higher incidence of the use of English when playing with friends for all the groups. This observation suggests that for Francophone families who do not live in close-knit communities, the lack of Francophone neighbors may add to the difficulty of maintaining their language. Answers on students' questionnaires reveal that the proportion of English-oriented students in both grades who always use English when communicating with siblings is not so different from the proportion of French-oriented students. This situation may suggest that some English-oriented students have brothers and sisters also enrolled in French programs, and may also be interpreted as a manifestation of their desire to speak French. With regard to French-oriented students, answers on students' questionnaires on this matter may appear surprising, as well as answers related to the use of French by parents when speaking to each other, especially in the

case of grade four students. An explanation may be that this category also encompasses parents from a mixed linguistic background, increasing therefore the chances of a higher incidence in the use of English.

The answers on questions 6 and 7 indicate that the proportion of French-oriented in both grades who always use English when communicating with their parents or guardians is lower than the proportion of French-oriented students who always use English in the situations described in the previous paragraph. This observation may reflect a desire to counteract the influence of the milieu at large, and may also indicate the difficulty for minorities to maintain their language.

Additional information was required of parents through a questionnaire (see Appendix B). Questions asked related to their mother tongue, their second language, the frequency of the use of French at home, the number of years spent in either an Anglophone or Francophone milieu, and the academic history of their children.

Upon the reception of students and parents' questionnaires, students were classified into two categories: French-oriented and English-oriented sub-groups. The "Dominant-Francophone" group or the parents whose answers on the use of French at home were "always" or "often" was too small a sample, 13 only, and was, therefore combined with the 15 students in the "Mixed" groups. In the study, the combined group was labelled the "French-oriented" subgroup. This category encompassed students coming from families, where one or both spouses or guardians are Francophone, and furthermore who answered on the Parents Home Background questionnaires that French was spoken at home "always,"

"often" or "half-French, half-English." The other group was labelled the "English-oriented" subgroup, and was comprised of students coming from families where the mother tongue of both parents was English. Furthermore, parents whether French or English who answered on the Parents Home Background questionnaires that French was spoken at home "sometimes" or "never," were also included in this category. It has to be emphasized that students from a linguistic background other than French and English were excluded from the study.

An attempt has been made to reconcile both parent and student questionnaires. An ambiguity was found when some Francophone students answered that they were using English at home, whereas their parents answered that they were using French. In this case, parents questionnaires were preferred, and their answers relating to their mother tongue and their use of French were the criteria considered for the classification. If they satisfied the conditions described earlier for being accepted as French-oriented, then they joined this group. If they failed to meet these prerequisites then, they were associated with the other group.

This classification was thought to be fair, since it respected the definition of a "Francophone" written in the policy. Further, the addition of the aforementioned requirements helped in narrowing down this definition, and consequently aided in purifying the category.

Educational Background: This variable is believed to correlate highly with academic results. Children from highly educated families are provided with more opportunities to develop their intellectual

curiosity. Their environment supplies books, travel, and worthwhile experiences which will enhance their intellectual development.

In this study, the socioeconomic status variable (SES) was replaced by the one written above for reasons of accuracy. A recession period has to to be acknowledged in these days, accounting for a high rate of unemployment. Many highly educated people are unemployed. As a consequence, it can be argued that the SES index which combines measures of earnings and educational attainment would not be valid today for many people.

To make sure that all students came from approximately the same educational background, a question to that effect was added to parent questionnaires. (see Appendix B). The following scale was developed in order to assign a rank to the different levels of school attendance:

| | | |
|---|---|---|
| Secondaire | : | 8 - 9 - 10 - 11 |
| CEGEP | : | 1(12) - 2(13) - 3(14) |
| Université | : | 1(14) - 2(15) - 3(16) - 4(16) |
| Autre | : | |
| | | |
| Junior High School | : | 8 - 9 - 10 |
| Senior High School | : | 11 - 12 |
| University | : | 1(13) - 2(14) - 3(15) - 4(16) - 5(16) |
| Master's degree | : | 18 |
| Ph.D | : | 20 |

The category "autre" encompassed a master's degree, a doctorate as well other types of certification. A baccalaureat degree was assessed as 16 years of schooling, a master's degree, 18 years, and a doctorate, 20 years. Furthermore, parents with other vocational and/or professional training were given an educational measure, taking into account differences between the French and English school systems. Both parents' educational background levels were averaged. The results are shown in Table 2a.

Table 2a

Mean Number of Years, and Standard Deviations of School Attendance

| | Grade 4 | | Grade 6 | |
|---|---|---|---|---|
| | X | SD | X | SD |
| English-Oriented subgroup: | 14.4 | 2.66 | 14.5 | 2.24 |
| French-Oriented subgroup: | 13.4 | 2.44 | 12.2 | 1.55 |

This table shows a difference of one year at grade four, and of almost two years at grade six. However at grade six, the standard deviation shows that the English-oriented subgroup is more heterogeneous than the French-oriented subgroup.

The variable "Educational background" has also been compared to Statistics Canada 1981 data for B.C. and Canada as a whole. These figures are given in Table 2b.

Table 2b

Statistics Canada Data for B.C. (1981) and Canada

| | Less than Grade 9 | Grades 9 - 13 | More than 13 Years |
|---|---|---|---|
| B.C. | 15% | 76.9% | 8.2% |
| Canada | 21.9% | 70.1% | 8.0% |
| Grade Four | | | |
| English-oriented | 0 [0] | 15 [41.6] | 21 [58.3] |
| French-oriented | 0 [0] | 15 [53.5] | 13 [46.4] |
| Grade Six | | | |
| English-oriented | 0 [0] | 9 [33.3] | 18 [66.6] |
| French-oriented | 0 [0] | 7 [29.1] | 17 [70.8] |

Note: Figure in brackets are percentages.

This table shows that 60% of the parents have more than 13 years of schooling, and therefore are classified in the first category which encompasses 8.2% of the whole population, while 40% of them rank in the second category which encompasses 76.9% of the general population. None of them are included in the third category.

From these data, it appears that the sample under investigation is well above average compared to the population in B.C. and in Canada.

However, it has to be noticed that for students at grade four, 58.3% of the English-oriented parents rank in the first category against 46.4% of the French-oriented parents. For students at grade six, 66.6% of the English-oriented parents are classified in the first category against 70.8% of the French-oriented parents. The results at grade six seem to be in contradiction with the information given in Table 2a, but examining the size of the standard deviation of the English-oriented group helps to understand this apparent contradiction.

Cognitive Ability: Cognitive ability is deemed to be highly correlated with academic achievement. A child who performs well on a test of cognitive skills is expected to achieve similarly good results either in Mathematics, Sciences, or Language Arts tests. Fishman and Lovas (1970) wrote about the high coincidence between underdevelopment and bilingualism and between lower IQ scores and bilingualism, but continued to say that there is no necessary connection between these factors. To make sure that this variable was controlled, a test of cognitive ability was administered: "Canadian Cognitive Ability Test" (CCAT). The third section which deals with nonverbal tasks was given, since it is described as being culture fair. It was, therefore, thought to be appropriate for the sample in the study which shows differences in linguistic background. The results are given in Table 3.

The figures show that grade four students are different on this measure, while grade six students are comparable. With regard to Canadian norms, while the grade six English-oriented students seem to be slightly above average, grade six French-oriented, and grade four English-oriented scored average. However, grade four French-oriented

Two other independent variables deemed to influence the results are age and sex. These two variables were not controlled, since the groups were intact classes of the PCDF. But, it can be assumed that the factor age is accounted for by the factor grade. Grade four usually represents a population of nine year-old children, while grade six represents a population of eleven year-old children. The factor sex was not taken into consideration for the same reason. Because of the smallness of the sample, it was also impossible to randomly drop some students, in order to make the groups even on these two variables. Therefore, the study was comprised of 17 girls and 17 boys at grade four. This result is rather surprising, especially with intact classes as samples. At grade six, however, a wide discrepancy is obvious between the number of boys and girls, as 19 girls and 10 boys made up the sample. This difference should be considered, when analyzing the results.

3. Research Design and Procedures:

This research can be described as "ex post facto" since it was conducted after the treatment was given. In this study, the treatment was the linguistic background. This treatment was believed to produce an effect on other variables such as academic achievement. In analyzing the students' scores on French and English tests, it was expected that one can find out the magnitude of the effect of this lifetime treatment on these scores. It is obvious that this kind of study could not use a pre-test.

It was decided that an appropriate statistical procedure would be the analysis of covariance with a test on cognitive abilities (CCAT)

Table 3

Mean Number and Standard Deviation of the Scores on the "CCAT"

| | Grade 4 | | Grade 6 | |
|---|---|---|---|---|
| | $\overline{X}$ | SD | X | SD |
| English-Oriented subgroup: | 14.4 (14) | 11.1 [29] | 63.8 (15) | 11.7 [45] |
| French-Oriented subgroup: | 13.4 (20) | 12.9 [46] | 66.0 (14) | 12.9 [57] |

Note: Figures in parentheses are numbers of students in each cell.

Figures in brackets are percentile ranks compared to Canadian norms drawn from the "CCAT".

students scored well below average. The difference at grade four is large enough to be considered attentively when comparisons are made between these groups.

Another efficient way to ensure that this variable does not influence the results, in other words, to ensure that the students are even on this variable, is to use a statistical procedure called the Analysis of covariance with the cognitive ability as a covariate. This procedure represents an attempt to equalize the groups on intelligence, and enables the researcher to analyze the variance in the results accounted for by the independent variable "Home Language Use." Therefore, a difference in the scores on the dependent variables, is not compounded by the intrusion of a concomitant variable. Once this factor is adjusted, any difference occurring in the French and English tests may be attributed to the "Home Language Use."

taken as a covariate. This procedure was intended to test hypotheses three and four, while the other hypotheses were taken care of by the use of descriptive statistics.

An analysis of covariance is the product of an analysis of variance to which a linear model is added. The analysis of variance deals with categorical variables. For the present study, one categorical variable was examined for its effect on the three dependent variables. The categorical variable was the treatment "Home Language Use," and the three dependent variables were one test of English and two tests of French. Separate analyses were conducted for grade four and grade six,and are shown in the Table 3.

Table 4

Description of the One Way ANOVA (Grade 4)

| Grade 4 |
|---|
| French-oriented students: |
| English-oriented students: |

Note: The same procedure applies to Grade six.

A linear model is described as follows by Kerlinger & Pedhazur, (1973):

$$Y_{ij} = \bar{Y} + T_j + b(X_{ij} - \bar{X}) + e_{ij}$$

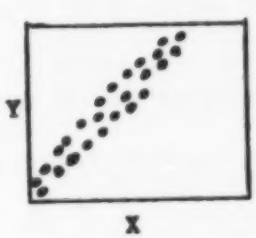
where $Y_{ij}$ = the score of subject i under treatment j; $\bar{Y}$ = the grand mean on the dependent variable; $T_j$ = the effect of treatment j; b = a common regression coefficient for Y on X; $X_{ij}$ = the score on the covariate for subject i under treatment j; $\bar{X}$ = the grand mean of the covariate; $e_{ij}$ = the error associated with the score of subject i under treatment j.

Tables 5a, 5b and 5c in chapter 4 show two means; an unadjusted and an adjusted one. The adjusted means indicate what part of the variation in the unadjusted means remains after the variation due to the covariate is removed. The analysis of covariance is helpful in keeping the researcher away from possible erroneous conclusions due to the presence of an intervening variable.

A second statistical procedure has been used: the Pearson product-moment correlation. It has often been suggested that ability in the home language has a positive correlation with ability in a foreign language. In this study, this means that scores on tests written in English should correlate with tests written in French for French-speaking students, and vice-versa for English-speaking students. In order to find out the presence of such a relationship, a product-moment correlation has been thought to be a suitable statistical procedure. Ferguson (1981) explained that measures of correlation by common convention are defined to take values ranging from -1 to +1. A value of -1 describes a perfect negative relation. All points lie on a straight line, and X decreases as Y increases. A value of +1 describes a perfect

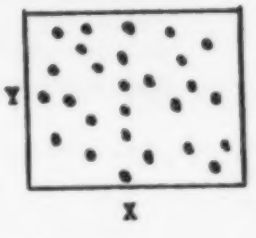
positive relation. All points lie on a straight line, and X increases as Y increases. A value of 0 means that X and Y are independent of each other or bear a random relation to each other (p. 111).

The following scatter diagrams give an idea of a positive, negative, and zero correlation.




a) positive (+1)

b) negative (-1)




c) 0 correlation(0)

It has to be indicated that the cognitive ability was controlled for the purpose of finding out the "real" correlations. Otherwise a child might have achieved high scores on both tests because of his superior intellectual ability, and not because of a possible relationship existing between both tests. Thus, it was thought that using the following formula would eliminate the effect of a third variable, and would show the correlation between French and English tests. Let us assume that Test de Lecture = X., TDRF = $X_2$ and CCAT = $X_3$ for the following equation.

$$r_{12\cdot3} = \frac{r_{12} - r_{13}r_{23}}{\sqrt{(1-r_{13}^{\ 2})(1-r_{23}^{\ 2})}}$$

Let this correlation between the three variables be as follows: $r_{12} = 0.5597$, $r_{13} = 0.52$ and $r_{23} = 0.34$. The partial correlation coefficient is:

$$r_{12.3} = \frac{0.5597 - (0.52)(0.34)}{\sqrt{(1-0.52^2)\,(1-0.34^2)}} = \frac{0.3829}{0.803} = 0.4678$$

By squaring r, we obtain the proportion of the variance of one test that can be predicted from the other test. In the results reported above $r^2 = (0.4678)^2 = 0.22$, which represents the proportion of variance, and when multiplied by 100, we obtain 22%, a percentage which cannot be considered high.

4. Description of measures employed:

a) Questionnaires:

i) Students' questionnaire: (A copy is included in Appendix A)

A questionnaire was administered to students in a first step in order to assess their linguistic background. This questionnaire has been modeled largely on the questionnaire constructed by the Franco-Ontarian researchers, Raymond Mougeon and Michael Canale for elementary level.

ii) Parents' questionnaire (see Appendix B).

Parents were asked questions concerning the frequency of their use of French at home, their educational background as well the amount of years their children involved in the study have lived in an Anglophone milieu.

b) French Language Tests:

i) Test de Lecture:

Content:

> The 'Test de Lecture' is designed to assess reading comprehension rather than the mechanics of reading as such. The test consists of a number of passages followed by questions based on its content. The passages were either adapted from already published material or written by a specialist in children's literature. The passages vary in length and type of material treated. The questions tap the pupil's comprehension of the content of the passages and inferences that he or she can make from them (p. 1, Test Manual).

Technical aspect:

> In May-June 1977, the four levels of the 'Tests de Lecture' were administered to French Immersion pupils at the appropriate grade levels by a number of school commissions throughout Canada in order to establish norms. Data from pupils coming from a French or bilingual background (with French spoken at home) were excluded; thus the norms reflect the performance of predominantly English-speaking children (p. 2, Test Manual).

It has to be mentioned that the

> Tests de Lecture battery was developed in the context of the longitudinal evaluation of French Immersion and bilingual education programs in Ontario (p. 1, Test Manual).

As previously mentioned, the population enrolled in the PCDF is composed of Dominant-English speaking students as well as Dominant-French speaking ones. In order to prevent the occurrence of a ceiling effect on a measure of French Language skills for Dominant-French speaking children (a possibility if only the Test de Lecture were used), another test, the "Test de Rendement" was also administered.

For the grades analyzed in this study, the following Test statistics were found in page 2 of the "Tests de Lecture" manual.

| Test | GRADE | No. of Items | No. of Pupils | $\bar{X}$ Score | SD | St. Error of Meas | Reliab. |
|---|---|---|---|---|---|---|---|
| 3e | 3 | 28 | 708 | 20.19 | 5.35 | 2.00 | 0.85 |
| 5e/6e | 5 | 35 | 489 | 17.39 | 7.18 | 2.59 | 0.87 |

As the authors have not developed norms in the Fall, the grades four and six students will be given the grades three and five tests. This difference in grade level, should be acknowledged when the results are computed.

Timing: grade four: 30 minutes

grade six: 40 minutes

ii) <u>The "Test de Rendement de Francais:"</u>

The following description appeared in the "Annotated List of French Tests" presented by the Modern Language Centre at the Ontario Institute for Studies in Education.

> The Test de Rendement de Français measures the students' knowledge of vocabulary, their listening comprehension, inferencing skills, spelling, and ability to draw basic grammatical distinctions. All test items are of a multiple choice type. Pupils are required to identify words on the basis of written definitions, select synonyms and antonyms of words, choose stylistically more precise substitutions for words in given contexts, and complete sentences with the correct conjunctions ... In grade six, the students must also read short passages and answer multiple choice questions based on their contents, determine the main idea or the least important sentence of a passage, select a title for a passage and identify the sequence of events, and complete open-ended passages with the most appropriate continuations (pp. 44-45).

Information on norms, validity, reliability could not be obtained.

Note: The "Test de Rendement de Français" has norms expressed only in stanines (see Appendix D). In this study, the stanines have been converted into percentiles following the table given in Appendix E.

c) English Language Test:

Gates-MacGinitie: This test has been selected among others for its emphasis on Vocabulary and Comprehension. These two components are deemed to be the most relevant in order to make sure that a language is "felt". In this perspective, technical skills are of secondary importance.

Content:

> The Vocabulary Test samples the student's reading vocabulary. This test contains 50 items, each consisting of a test word followed by five other words, one of which is similar in meaning to the test word. The student's task is to choose the word that means most nearly the same as the test word. The first items are composed of easy and commonly used words. Gradually the words become less common and more difficult (p. 1, Test Manual).

> The Comprehension Test measures the students' ability to read complete prose passages with understanding. It contains 21 passages in which a total of 52 blank spaces have been introduced. For each blank space a choice of five completions is offered. The student must decide which one of the five completions best conforms to the meaning of the whole passage. The first passages are simply written, but the latter ones become progressively more difficult (p. 1, Test Manual).

Technical aspect:

Standardization:

> The 1964-65 norms for the Gates-MacGinitie Reading Tests were developed by administering the tests to a nationwide sample of approximately 40,000 students in 37 communities. The communities were carefully selected to be representative on the basis of size, geographical location, educational level, and family income (p. 1).

**Reliability:**

A reliability coefficient is an index of the accuracy of the scores obtained on a test. The alternate-form reliability coefficient takes into account variations in a student's performance from one day to another and variations in the content of the test from one form to another (p. 4).

Alternate-form reliability coefficients were obtained by administering one form of the test on one day and a second form on another day. Order of administration of the test forms was counterbalanced (p. 4).

Split-half reliability coefficients were also computed in order that comparisons could be made with tests which report only split-half reliabilities (see Appendix 3).

**Validity:**

The validity of an achievement test is usually evaluated in terms of its content validity. The content validity of a reading achievement test refers to how well the items of that test cover the objectives of a particular reading program. The test user may best understand the tasks that the test impose by reading the tests and carefully considering what is involved in getting the correct answers (p. 4, Test Manual).

Concurrent validity coefficients for the correlation of Primary C at grade three and Survey D at grade five with four other standardized reading tests were obtained in a study by Davis. The medium coefficients were .84 for Primary C Vocabulary, .79 for Primary C Comprehension, .78 for Survey D Vocabulary, and .80 for Survey D Comprehension (p. 4).

**Timing:**

| | | |
|---|---|---|
| Vocabulary Test | : | 15 min. |
| Comprehension Test | : | 25 min. |
| Total | : | 40 min. |

d) Canadian Cognitive Abilities Test:

Content:

The Canadian Cognitive Abilities Test (CCAT) has evolved from the well-accepted Lorge-Thorndike Intelligence Tests series which was modified and standardized in Canada as the Canadian Lorge-Thorndike Intelligence Tests (p. 2).

This test provides a set of measures of the individual's ability to use and manipulate abstract and symbolic relationships. Three-main types of symbols play substantial roles in the thinking of students and adults: Symbols representing words, symbols representing quantities, and symbols representing spatial, geometric or figural patterns (p. 2).

In this test, the authors have attempted to emphasize relational thinking the perceiving of relationships among abstract elements in a variety of media and settings. Throughout each of the subtests the basic elements have been kept relatively simple, clear and familiar (p. 2).

Technical aspect:

Norms: The Canadian Cognitive Abilities Test was normed jointly with the Canadian Tests of Basic Skills, Forms 3 and 4, (grades 3-8). Thus, norms for the Canadian Cognitive Abilities Test are based on the same students used to norm the achievement test battery.

Robert C. Nichols cited in the Eighth Mental Measurements Yearbook (Buros) has made the following statement about the test CAT:

Reliability:

Kuder-Richardson 20 reliabilities range from .91 to .96 for the various batteries and levels in the multi-level booklet. The reliabilities of the primary levels are slightly lower, going down to .89 (p. 181).

The Lorge-Thorndike verbal and nonverbal tests are reasonably parallel forms of the corresponding CAT Tests. The median corelations of the CAT with the Lorge-Thorndike over a six-month period for seventh and ninth grade children

were .86 for verbal and about .73 for nonverbal. This shows very good stability over a short time and over forms for the verbal battery and adequate stability for the nonverbal battery. Parallel form retest reliabilities over 13 months for the primary levels were about .73 for students initially tested in kindergarten and about .81 for students initially tested in first and second grades (p. 181).

As an indication of concurrent validity, the manual presents correlations with achievement as measured by ITBS and TAP based on 500 students at each grade level from the standardizations sample "typicalcorrelation with the achievement test composite is .80 to .85 for the verbal battery, .70 to .80 for the quantitative battery and .65 to .70 for the nonverbal battery (p. 181).

# CHAPTER IV

## Analysis of Data

### 1. Introduction

The results of the analyses described in Chapter Three are presented in this chapter. In addition, other analyses have been conducted, and the results appear in this chapter as well. Analyses of covariance explained in the previous chapter will be introduced first, followed by supplementary analyses, and the Pearson product-moment correlation will be analysed at the conclusion of this chapter.

Note: For all analyses, the dependent variable "GMTOT" means the total score of both subtests vocabulary and comprehension of the Gates-MacGinitie.

### 2. Summary of Analyses of Covariance

"Subgroup" as Independent Variable. In order to determine whether the differences in the mean scores on achievement tests are due to the variable "Home Language Use" represented by the classification "French-oriented" and "English-oriented" students, an analysis of covariance was done using the Canadian Cognitive Ability Test (CCAT) scores as the covariate. The results of these analyses are given in Table 5a, 5b and 5c. The results show that significant differences are obtained for grade six English-oriented students, on the Gates-MacGinitie Test," $F(1,22) = 4.55$, $p < .05$, for grade six, French-oriented students, on the "Test de Lecture," $F(1,27) = 5.87$, $p < .05$, and for grade six French-

Table 5a

Summary of Analyses of Covariance of Achievement Tests Scores

Dependent Variable Gates-MacGinitie

| | French-Oriented Students | | | English-Oriented Students | | | |
|---|---|---|---|---|---|---|---|
| Grades | Unadj. $\bar{X}$ | SD | Adj. $\bar{X}$ | Unadj. $\bar{X}$ | SD | Adj. $\bar{X}$ | F |
| 4 | (13) | | | (18) | | | |
| | 44.23 | 13.46 | 46.01 | 54.61 | 11.61 | 53.31 | 2.62 |
| | | | [58] | | | [73] | |
| | (14) | | | (11) | | | |
| 6 | 61.64 | 16.35 | 61.98 | 72.63 | 10.09 | 72.20 | 4.55* |
| | | | [50] | | | [76] | |

*Significant at .05.

Note: Figures in parentheses are numbers of students in cells.

Figures in brackets are percentile ranks corresponding to adjusted $\bar{X}$ of each dependent variable.

Table 5b

Summary of Analyses of Covariance of Achievement Tests Scores

Dependent Variable Test De Lecture

| | French-Oriented Students | | | English-Oriented Students | | | |
|---|---|---|---|---|---|---|---|
| Grades | Unadj. $\bar{X}$ | SD | Adj. $\bar{X}$ | Unadj. $\bar{X}$ | SD | Adj. $\bar{X}$ | F |
| 4 | (13) | | | (18) | | | |
| | 21.76 | 3.89 | 22.42 | 23.44 | 3.5 | 22.97 | 0.19 |
| | | | [54] | | | [54] | |
| | (15) | | | (12) | | | |
| 6 | 24.33 | 6.69 | 24.46 | 18.58 | 6.81 | 18.41 | 5.87* |
| | | | [79] | | | [54] | |

*Significant at .05.

Note: Figures in parentheses are numbers of students in cells.

Figures in brackets are percentile ranks corresponding to adjusted $\bar{X}$ of each dependent variable.

Table 5c

Summary of Analyses of Covariance of Achievement Tests Scores

Dependent Variable Test De Rendement

| | French-Oriented Students | | | English-Oriented Students | | | |
|---|---|---|---|---|---|---|---|
| Grades | Unadj. $\bar{X}$ | SD | Adj. $\bar{X}$ | Unadj. $\bar{X}$ | SD | Adj. $\bar{X}$ | F |
| 4 | (12) | | | (19) | | | |
| | 11.75 | 4.88 | 12.93 | 11.63 | 5.09 | 10.88 | 1.44 |
| | | | [11-23] | | | [4-11] | |
| | (15) | | | (13) | | | |
| 6 | 20.26 | 7.09 | 20.44 | 15.84 | 3.91 | 15.63 | 5.19* |
| | | | [40-60] | | | [11-23] | |

*Significant at .05.

Note: Figures in parentheses are numbers of students in cells.

Figures in brackets are percentile ranks corresponding to adjusted $\bar{X}$ of each dependent variable.

oriented students, on the "Test de Rendement." $F(1,28) = 5.19$, $p < .05$.

Furthermore, graphical analyses of these scores are illustrated in Figures 1, 2, and 3. Both subgroups scores at grade four and grade six are expressed in terms of percentile ranks, accordingly to the norms indicated in test manuals provided with each test.

3. Summary of Analyses of Covariance:

"Subgroup and Amount of Exposure to the Program" as Independent Variables (with CCAT partialed out). "Amount of Exposure to the Program" has been assessed from parents' questionnaires to the question 9 (see Appendix B). "Subgroup" represents French-oriented and English-oriented students. Thus, two way (2 x 2) analyses of covariance were conducted in order to examine the influence of the number of years spent in the PCDP on each of the three tests for French-oriented and English-oriented students. The results are given in Table 6 for grade four. The results show a significant main effect for exposure to the program when "Test de Lecture" is the dependent variable $F(1,26) = 4.6$, $p < .05$. There is no exposure by subgroup interaction effect for any of the dependent variables. A significant difference is obtained for the covariate (CCAT), $F(1,26) = 10.16$, $p < .05$ on the "Test de Lecture," $F(1,26) = 8.02$, $p < .05$ on the Gates-MacGinitie, and also $F(1,26) = 9.18$ $p < .05$ on the Test de Rendement.

Results for grade six are illustrated in Table 7. There is a significant main effect for subgroup for each of the three tests; when the Gates-MacGinitie is the dependent variable $F(1,20) = 4.62$, $p < .05$,

Figure 1

Percentile Ranks of two Subgroups on the "Gates-MacGinitie Test"

(compared to a norm group).

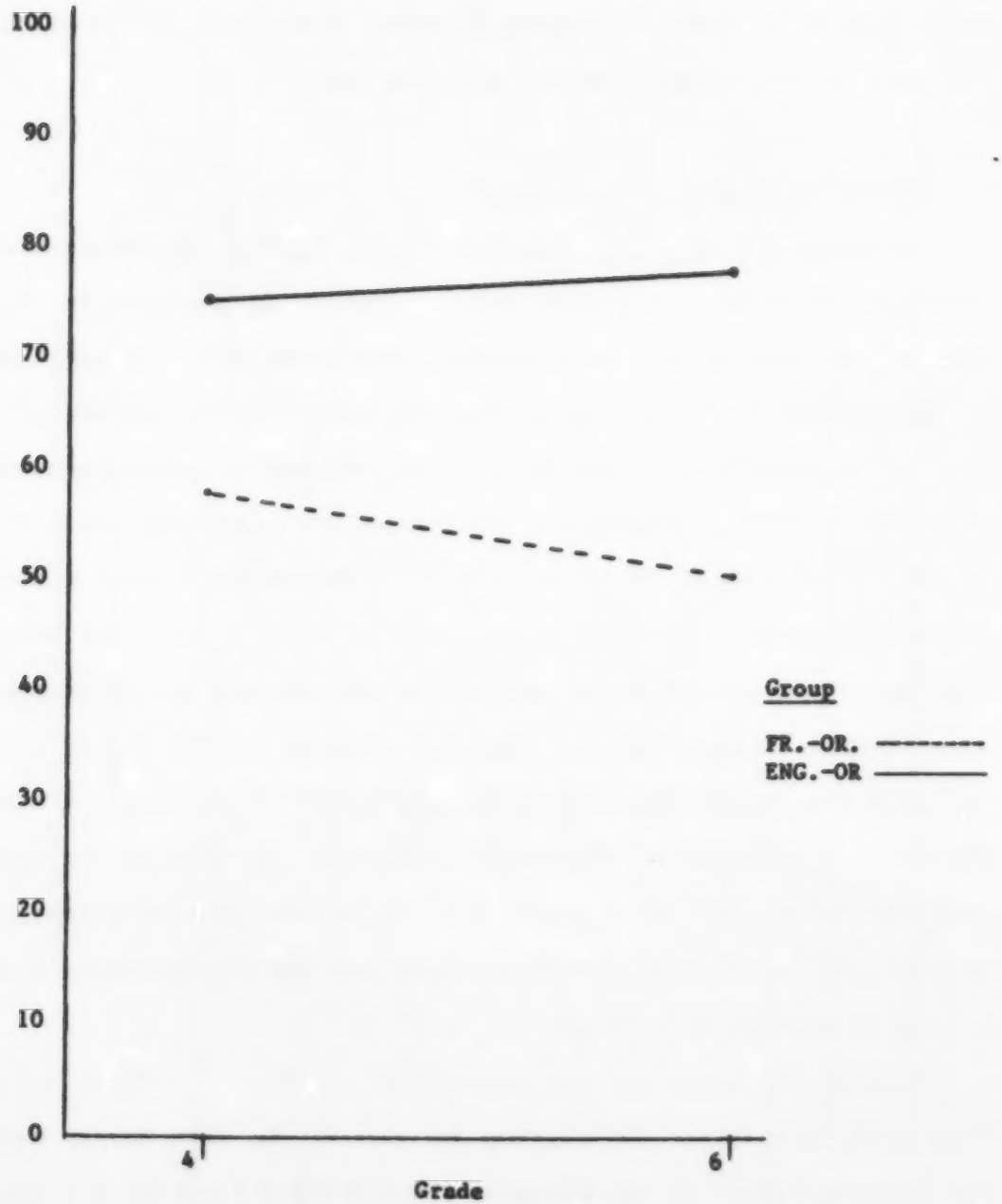


Figure 2

Percentile Ranks of two Subgroups on the "Test de Lecture"

(compared to a norm group).

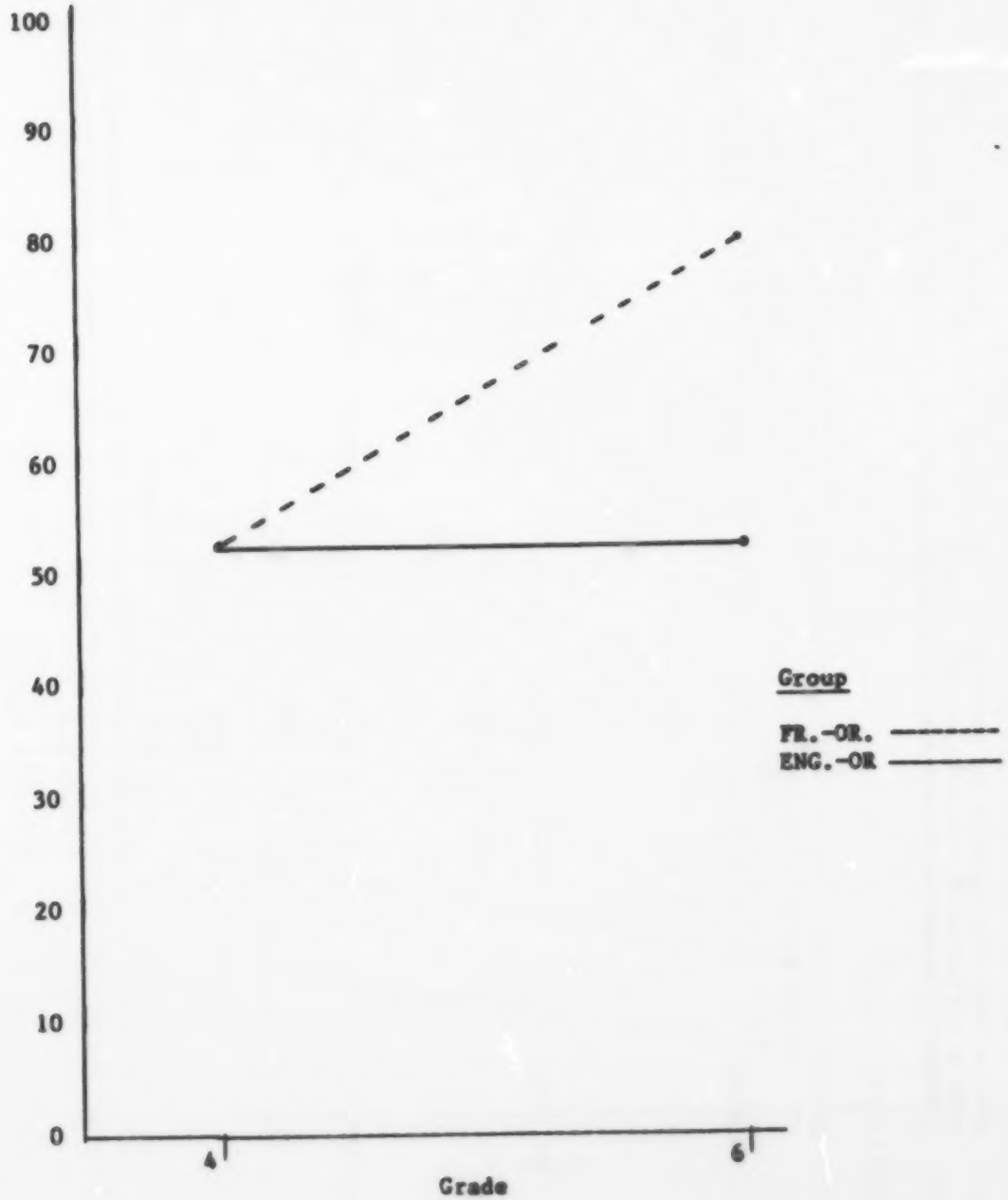


Figure 3

Percentile Ranks of two Subgroups on the "Test de Rendement"

(compared to a norm group).

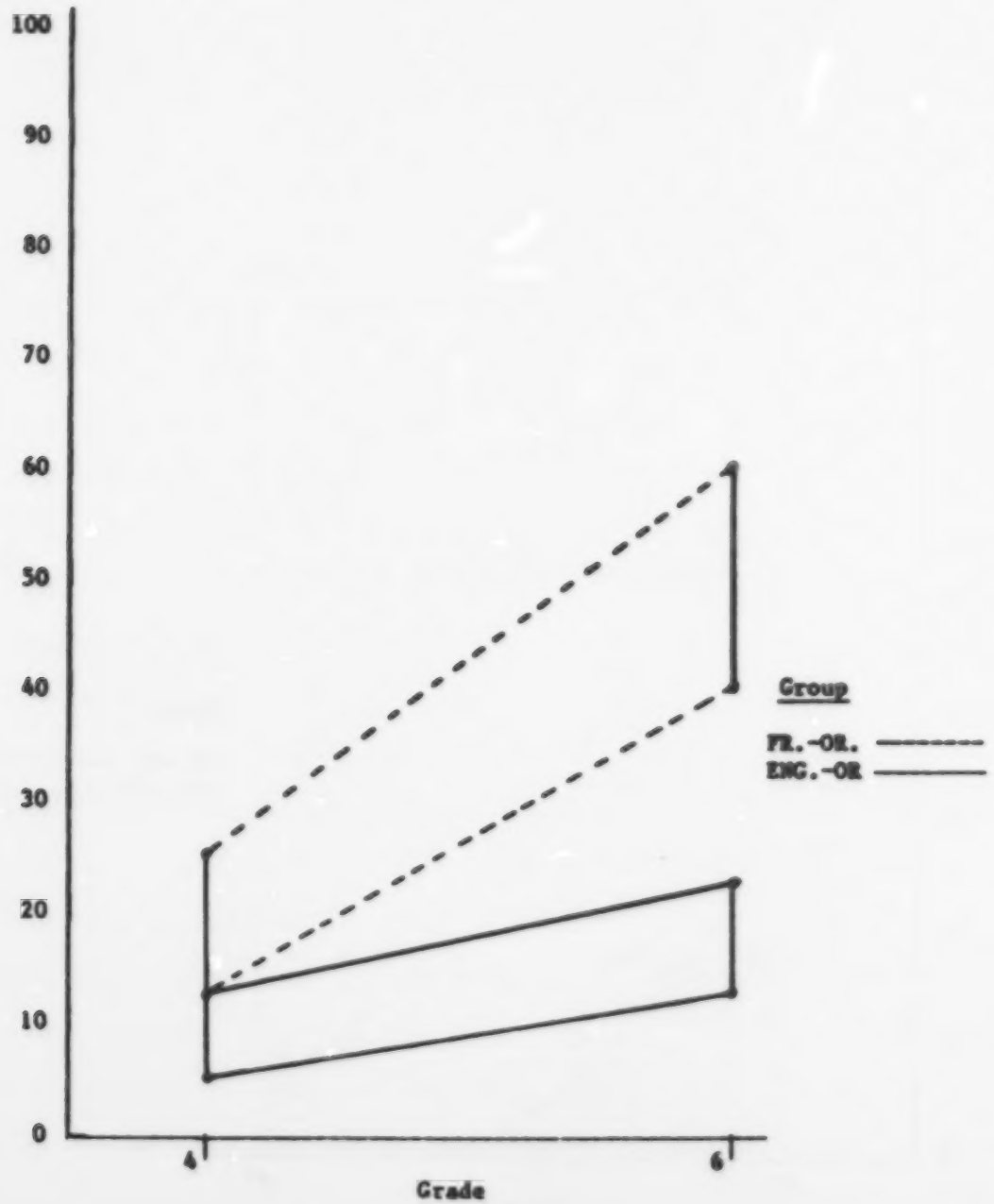


Table 6

Summary of Analyses of Covariance with the Independent Variable "Exposure to the Program"

Grade 4

| | French-Oriented Exposure | | English-Oriented Exposure | | Independent Variables | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | | Expo | | Subgroup | |
| | High | Low | High | Low | MS | F | MS | F |
| | (8) | (5) | (15) | (3) | | | | |
| Gates-MacG. | 41.00 | 49.40 | 55.27 | 51.33 | 34.26 | 0.256 | 393.62 | 2.945 |
| | | | | | MS-RES 133.65 | df (26) | | |
| | (8) | (5) | (15) | (3) | | | | |
| Test de Lect. | 22.75 | 20.20 | 23.93 | 21.00 | 45.85 | 4.6* | 0.069 | 0.007 |
| | | | | | MS-RES 9.96 | df (26) | | |
| | (7) | (5) | (16) | (3) | | | | |
| Test de Rend. | 13.29 | 9.60 | 12.00 | 9.67 | 69.27 | 3.85 | 55.45 | 3.08 |
| | | | | | MS-RES 17.96 | df (26) | | |

*Significant at .05.

Note: Figures in parentheses are numbers of students.
High = 2-3 years of exposure to the "PCDF".
Low = less than 2 years of exposure to the "PCDF".
df = are in parentheses for Exposure and for Subgroup.

Table 7

Summary of Analyses of Covariance with the Independent Variable "Exposure to the Program"

Grade 6

| | French-Oriented Exposure | | English-Oriented Exposure | | Independent Variables | | | |
|---|---|---|---|---|---|---|---|---|
| | High | Low | High | Low | Expo MS | Expo F | Subgroup MS | Subgroup F |
| | (9) | (5) | (7) | (4) | | | | |
| Gates-MacG. | 64.11 | 57.20 | 75.29 | 68.00 | 298.62 | 2.13 | 647.17 | 4.62* |
| | | | | | MS-RES 140.03 | df (20) | | |
| | (9) | (6) | (7) | (5) | | | | |
| Test de Lect. | 24.00 | 24.83 | 18.86 | 18.2 | 0.04 | 0.001 | 243.04 | 5.416* |
| | | | | | MS-RES 44.87 | df (22) | | |
| | (9) | (6) | (8) | (5) | | | | |
| Test de Rend. | 21.00 | 19.17 | 15.88 | 15.8 | 6.78 | 0.206 | 160.44 | 4.86* |
| | | | | | MS-RES 32.95 | df (23) | | |

*Significant at .05.

Note: Figures in parentheses are numbers of students.
High = 3-4-5 years of exposure to the progam.
Low = less than 3 years of exposure to the program.
df = are in parentheses for Exposure and for Subgroup.

when the Test de Lecture is the dependent variable $F(1,26) = 5.41$, $p < .05$, and when the Test de Rendement is the dependent variable $F(1,23) = 4.86$, $p < .05$.

However, these analyses needed to be supplemented by information contained in Tables 8 and 9.

In Table 8, the independent variable was also assessed from responses to the question 9, on parents' questionnaire (see Appendix B).

In the following table, amount of years in a Regular English Program (REP) was assessed from responses to the question 9 on the parents' questionnaire (see Appendix B).

Tables 8 and 9 will be discussed in Chapter Five in relation to the analysis of the hypotheses stated in Chapter One.

4. Summary of Analyses of Covariance:

"Subgroup and number of years lived in an Anglophone Milieu" as Independent Variables. "The number of years lived in an Anglophone milieu" has been categorized into two levels: High and Low. A first classification has been attempted looking at three categories, High, Medium and Low. As the number of the students in the low category was too small, the middle category was pooled with the low category. This strategy provided a low category with 5 students in it and a high category with 8 students. The number of years corresponding to each category is given in the note at the bottom of Tables 10 and 11. These two way (2 x 2) analyses of covariance, amount of "years" by "subgroup" have been done with CCAT as the covariate. The results are given in Table 9

Table 8

Means and Standard Deviations of "Amount of Exposure to PCDF"
(grades 4 and 6)

| French-Oriented Students | | | English-Oriented Students | | |
|---|---|---|---|---|---|
| Grade | $\bar{X}$ | SD | Grade | $\bar{X}$ | SD |
| 4 (n = 14) | 2.2 | 1.57 | 4 (n = 20) | 2.3 | 0.82 |
| 6 (n = 15) | 2.8 | 1.47 | 6 (n = 14) | 2.7 | 0.91 |

Note: Figures in parentheses are numbers of students in each cell.
Years are school years.

Table 9

Means and Standard Deviations of "Amount of Exposure to REP"
(grades 4 and 6)

| French-Oriented Students | | | English-Oriented Students | | |
|---|---|---|---|---|---|
| Grade | $\bar{X}$ | SD | Grade | $\bar{X}$ | SD |
| 4 (n = 14) | 1.1 | 1.51 | 4 (n = 20) | 0.75 | 0.74 |
| 6 (n = 15) | 1.5 | 1.84 | 6 (n = 14) | 2.42 | 1.82 |

Note: Figures in parentheses are numbers of students in each cell.
Years are school years.

Table 10

Summary of Analyses of Covariance with the Independent Variable "Number of Years Lived in an Anglophone Milieu"

Grade 4

| | French-Oriented Exposure | | English-Oriented Exposure | | Independent Variables | | | |
|---|---|---|---|---|---|---|---|---|
| | High | Low | High | Low | Years MS | Years F | Subgroup MS | Subgroup F |
| | (8) | (5) | (18) | (0) | | | | |
| Gates-MacG. | 46.00 | 41.4 | 54.6 | | 41.73 | 0.296 | 182.69 | 1.295 |
| | | | | | MS-RES 141.02 | df (27) | | |
| | (8) | (5) | (18) | (0) | | | | |
| Test de Lect. | 21.38 | 22.4 | 23.44 | | 5.73 | 0.511 | 5.82 | 0.51 |
| | | | | | MS-RES 11.21 | df (27) | | |
| | (7) | (5) | (19) | (0) | | | | |
| Test de Rend. | 11.00 | 12.8 | 11.63 | | 10.84 | 0.55 | 7.36 | 0.37 |
| | | | | | MS-RES 19.46 | df (27) | | |

*Significant at .05.

Note: Figures in parentheses are numbers of students in every cell.
High = 7 up to 9 years.
Low = less than 7 years.

Table 11

Summary of Analyses of Covariance with the Independent Variable "Number of Years Lived in an Anglophone Milieu"

Grade 6

| | French-Oriented Exposure | | English-Oriented Exposure | | Independent Variables | | | |
|---|---|---|---|---|---|---|---|---|
| | High | Low | High | Low | Years MS | Years F | Subgroup MS | Subgroup F |
| | (8) | (6) | (11) | (0) | | | | |
| Gates-MacG. | 61.63 | 61.67 | 72.64 | | 7.30 | 0.05 | 422.99 | 2.87 |
| | | | | | MS-RES 147.28 | df (21) | | |
| | (8) | (7) | (12) | (0) | | | | |
| Test de Lect. | 21.5 | 27.57 | 18.58 | | 122.22 | 3.23 | 53.77 | 1.42 |
| | | | | | MS-RES 37.87 | df (23) | | |
| | (8) | (7) | (13) | (0) | | | | |
| Test de Rend. | 17.13 | 23.86 | 15.85 | | 153.82 | 6.004* | 15.51 | 0.60 |
| | | | | | MS-RES 25.62 | df (24) | | |

*Significant at .05.

Note: Figures in parentheses are numbers of students in each cell.
High = 10 or 11 years.
Low = less than 10 years.

for grade four. No significant "years" or "subgroup" main effects are obtained. It has to be noted that there were no students in one cell--the English-oriented low years cell--therefore, no two way interaction was tested. The covariate has a significant effect $F(1,27) = 7.60$, $p < .05$ when the dependent variable is the Gates-MacGinitie test scores, also when the dependent variable is the Test de Rendement $F(1,27) = 8.48$, $p < .05$, and when the dependent variable is the Test de Lecture $F(1,27) = 9.03$, $p < .05$.

For grade six, the results are given in Table 11. A significant main effect is found for the variable "years" when the dependent variable is the Test de Rendement $F(1,24) = 6.004$, $p < .05$. It has to be noted again that there were no students in one cell--the English-oriented low years cell--therefore, no two way interaction was tested. The covariate CCAT has a statistically significant effect $F(1,21) = 10.18$, $p < .05$, when the dependent variable is the Gates-MacGinitie test.

These results needed to be supplemented by the following information. In Table 12, the amount of years lived in an Anglophone milieu was assessed from responses to the question 8, on parents' questionnaire (see Appendix B).

This table will be referred to when the findings are discussed in Chapter Five.

5. Summary of Multiple Regression Analyses

Four independent variables: Grade, Canadian Cognitive Ability Test (CCAT), number of years lived in an Anglophone milieu, and amount of

Table 12

Means and Standard Deviations of "Number of Years Lived in an Anglophone Milieu" (grades 4 and 6)

| French-Oriented Students | | | English-Oriented Students | | |
|---|---|---|---|---|---|
| Grade | $\bar{X}$ | SD | Grade | $\bar{X}$ | SD |
| 4 (n = 14) | 7.14 | 2.68 | 4 (n = 20) | 8.8 | 0.3 |
| 6 (n = 15) | 7.6 | 4.01 | 6 (n = 14) | 11.5 | 0.35 |

Note: Figures in parentheses are numbers of students in each cell.

exposure to the PCDF were used in six multiple regression analyses, two for each of the three dependent measures. In a multiple regression analysis, the order of entry of the variables into the regression equation does make a difference. Since other independent variables such as Grade and Cognitive Ability are deemed to infuence any scholastic achievement scores they have to be given priority in the order of entry over other variables. When these two variables are assessed, then it is possible to determine the amount of variance accounted for by the other variables "Number of Years in an Anglophone Milieu" and "Amount of Exposure to the PCDF." In order to find out which of those variables had more influence on the three dependent variables, "Gates-MacGinitie total score, Test de Lecture, and Test de Rendement" two analyses were performed for each dependent variable in which "years" was entered first followed by "Expo", and in a second time, where "Expo" was entered first followed by "years." Results are given in Table 13.

However, squares of partial correlation coefficients ($r^2$) indicate the contribution to the variance of the dependent variable that each independent variable adds after the variance contribution of preceding variables. The results given in Table 13 show that the variable "years" accounts for 16% of the variance in the Gates-MacGinitie, for 10% in the "Test de Lecture," and for 2% in the "Test de Rendement," whereas the variable "Expo" accounts for 0.8 of 1% in the Gates-MacGinitie; for 0.3 of 2% in the "Test de Lecture," and for 4% in the "Test de Rendement."

Table 13

Summary of Multiple Regression Analysc with four Indeperdent Variables

| Variables | | GMTOT | | Test de Lecture | | Test de Rend. | |
|---|---|---|---|---|---|---|---|
| | | $R^{2}$* | $r^{2}$** (n = 56) | $R^{2}$ | $r^{2}$** (n = 58) | $R^{2}$ | $r^{2}$** (n = 59) |
| Grade | [1] | 0.25 | 0.25 | 0.007 | 0.007 | 0.26 | 0.26 |
| CCAT | [2] | 0.43 | 0.24 | 0.131 | 0.111 | 0.37 | 0.17 |
| Years | [3] | 0.50 | 0.16 | 0.258 | 0.102 | 0.47 | 0.027 |
| Expo | [4] | 0.51 | 0.008 | 0.265 | 0.003 | 0.49 | 0.041 |
| Grade | [1] | 0.25 | 0.25 | 0.007 | 0.007 | 0.26 | 0.26 |
| CCAT | [2] | 0.43 | 0.24 | 0.13 | 0.111 | 0.37 | 0.17 |
| Expo | [3] | 0.43 | 0.008 | 0.13 | 0.003 | 0.38 | 0.041 |
| Years | [4] | 0.51 | 0.16 | 0.26 | 0.102 | 0.49 | 0.027 |

Note: Figures in parentheses are numbers of students in each cell.
Figures in brackets are orders of entry of variables.

*From multiple regression analysis.

**Squares of simple Pearson product moment correlations between dependent variable and each of the independent variables.

6. Summary of Analyses of Covariance

"Dominant-Francophone" and "Mixed" as the independent variables: So far, analyses of covariance have been done on "French-oriented" students including "Dominant-Francophone" and "Mixed French-English" children. The size of these two groups taken separately was too small to be compared to the English-oriented group. Therefore, they have been combined, and analysed as one major category French-oriented students. However, for the purpose of these analyses, the subcategories aforementioned were set up according to the answers to questions one, two and five on parents' questionnaire (Appendix B). Children from parents who answered "Often" or "Always" were classified into the category "Dominant-Francophone," whereas children from parents who answered "half French, half English" were classified into the "Mixed" category. Two way (2 x 2) analyses of covariance, "Dominance" by "Grade" have been done with CCAT as the covariate. The resuts are given in Table 14. There is a significant main effect for the variable "grade" when the dependent variables are the Gates-MacGinitie test scores $F(1,22) = 7.37$, $p < .05$ and the "Test de Rendement" $F(1,22) = 5.42$, $p. < .05$. There is no dominance by grade interaction effect for any of the three dependent variables. The covariate has a statistically significant effect $F(1,22) = 6.94$, $p < .05$, when the dependent variable is the "Test de Rendement," and also a statistically significant effect $F(1,23) = 12.22$, $p < .05$, when the dependent variable is the "Test de Lecture."

Table 14

Summary of Analyses of Covariance with the Independent Variable:
Dominant French and Mixed

| | Dominant | | Mixed | | Independent Variables | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | | Grade | | Dominance | |
| | Gr. 4 | Gr. 6 | Gr. 4 | Gr. 6 | M.S. | F | M.S. | F |
| | (5) | (7) | (8) | (7) | | | | |
| GMTOT | 40.75 | 54.05 | 48.33 | 67.01 | 1431.47 | 7.37* | 606.004 | 3.12 |
| | | | | | MS-RES 194.24 | df (22) | | |
| | (5) | (8) | (8) | (7) | | | | |
| Test De Lect. | 24.17 | 24.56 | 22.41 | 21.6 | 0.24 | 0.01 | 32.94 | 1.44 |
| | | | | | MS-RES 22.95 | df (23) | | |
| | (5) | (8) | (7) | (7) | | | | |
| Test De Rendement | 14.29 | 19.30 | 12.42 | 18.87 | 175.38 | 5.42* | 7.84 | 0.24 |
| | | | | | MS-RES 32.34 | df (22) | | |

*Significant at .05.

Note: Figures in parentheses are numbers of students in each cell.
df are in parentheses for grade and for dominance.

## 7. Summary of the Partial Correlation Analyses

Correlations are analysed between French tests scores (Test de Lecture and Test de Rendement) and English test scores (Gates-MacGinitie) when CCAT is partialed out. The results given in Table 15 show that there exist negative correlations between the "Test de Lecture," and the "Gates-MacGinitie," and also between the "Test de Rendement," and the "Gates-MacGinitie" for grade four French-oriented students. Positive correlations are found between these tests for grade four English-oriented students. At grade six, for both subgroups, a positive correlation is observed between the two measures of French, and the measure of English. Figures in brackets give percentages of variance of test 1 explained by variation of test 2, when CCAT has been controlled.

## 8. Summary of Descriptive Statistics:

Comparisons between the Cognitive Ability Test scores and the three other tests scores, the Gates-MacGinitie (GMTOT), the Test de Lecture and the Test de Rendement have been attempted. Results are given in Table 16. Percentile ranks in parentheses show that grade four French-oriented students achieved higher on the GMTOT, and on the Test de Lecture than on the CCAT, whereas they achieved lower on the Test de Rendement. Grade six French-oriented students achieved at about the same percentile rank on the GMTOT and on the Test de Rendement as on the CCAT, whereas they achieved much higher on the Test de Lecture. Grade four English-oriented students achieved much higher on the GMTOT, and on

Table 15

Partial Correlation Analyses Between French Tests Scores and English Test Score when CCAT is Partialed Out

| | French-Oriented Students Gates-MacGinitie | | English-Oriented Students Gates-MacGinitie | |
|---|---|---|---|---|
| | Grade 4 | Grade 6 | Grade 4 | Grade 6 |
| Test de Lect. | (9) | (11) | (15) | (7) |
| | -0.0122 [.01] | 0.4561 [20] | 0.6763 [46] | 0.2698 [7] |
| Test de Rend. | (9) | (11) | (15) | (7) |
| | -0.0435 [.2] | 0.3693 [14] | 0.5769 [33] | 0.5475 [29] |

Note: Figures in parentheses are numbers of students in each cell.

Figures in brackets are percentages of variance.

Table 16

Mean Number of Scores on the Dependent Variables vs Independent Variable (CCAT)

| Variables | French-Oriented Students | | English-Oriented Students | |
|---|---|---|---|---|
| | Grade 4 | Grade 6 | Grade 4 | Grade 6 |
| CCAT | (29) | (45) | (46) | (57) |
| | 55.9 | 63.8 | 63.8 | 66.0 |
| CMTOT | (54) | (42) | (73) | (79) |
| | 44.2 | 57.5 | 53.63 | 73.1 |
| Test de Lecture | (48) | (79) | (62) | (58) |
| | 21.5 | 24.3 | 23.6 | 19.15 |
| Test de Rendement | (10) | (50) | (10) | (23) |
| | 11.5 | 20.3 | 11.25 | 15.85 |

Note: Figures in parentheses are percentile ranks.

the Test de Lecture compared to their performance on CCAT, while they achieved much lower on the Test de Rendement. Finally, grade six English-oriented students achieved similarly on both CCAT and the Test de Lecture, whereas they achieved much higher on the GMTOT, and much lower on the Test de Rendement. On an overall basis, no consistent trend is identified in the direction of a positive relationship between CCAT scores and scores on the three dependent variables.

# CHAPTER V

## Summary of Findings, Conclusion, Limitations, Implications

### 1. Introduction:

The research problem, identified in the first chapter, was to investigate if students enrolled in a French program in a minority situation were experiencing an additive form of bilingualism. It has to be remembered that this French program (PCDF) hosts two subgroups in terms of linguistic background, a French-oriented subgroup, and an English-oriented subgroup. As the English-oriented subgroup belongs to a language majority in the setting of British Columbia, their enrollment in the PCDF denotes their motivation in learning or adding a second language. For this group, the acquisition of a second language will not threaten the survival of their own.

In contrast, French-language children in B.C. form a minority-language. The acquisition of the majority-language becomes a matter of survival for them. Studies conducted on minority-language children have shown that these children develop a "semilingualism", when they are introduced to a second language in their early school years. However, other studies have evidenced that minority-language children may also experience an additive form of bilingualism when their mother tongue is made the language of instruction in schools.

Since the PCDF offers the teaching of a second language for majority-language children, and the teaching of the first language for minority-language children, it was assumed that this program would

foster a form of additive bilingualism for these two groups.

This form of "additive" bilingualism is expected to be reflected through scholastic achievement. These expectations were formulated in terms of hypotheses mentioned in the first chapter. The confirmation of these hypotheses means that both subgroups in this French program in a minority situation experience a form of "additive" bilingualism.

2. Summary of Findings:

The first hypothesis, dealing with French-oriented students in the PCDF, stated that this subgroup will achieve as well as a norm group of English students in the Regular English Program (REP) on a measure of English achievement.

For the purpose of this study, the expression "as well as" refers to a range of percentile ranks going from the 45th to the 55th. Table 4a shows that grade four French-oriented students achieved as well as the norm group of English students on the Gates MacGinitie test, and that grade six French-oriented students achieved slightly higher. Thus, the null hypothesis as anticipated was not rejected.

In reference to the second hypothesis, which stipulated that there will be no significant difference between the English-oriented students in the PCDF, and a norm group of English-speaking students in the REP, on a measure of English achievement, the findings given in Table 5a show that this subgroup attained respectively, the 73th percentile and the 76th percentile ranks. The second null hypothesis as anticipated was not rejected.

With regard to the third hypothesis, at grade six, contrary to expectations, the null hypothesis was rejected and a significant difference was found. The English-oriented students achieved significantly higher than the French-oriented students. However, at grade four, the null hypothesis as anticipated was not rejected. Table 7 indicates that there was a difference between the two subgroups in terms of exposure to formal English instruction. This difference, which was to the advantage of the English-oriented subgroup, may account for the rejection of this hypothesis at grade six.

The fourth hypothesis asserted that the French-oriented subgroup in the PCDF would achieve significantly higher on a measure of French achievement than the English-oriented subgroup in the PCDF.

The findings given in Tables 5b, and 5c indicate that grade six French-oriented students support the hypothesis on both measures of French, the "Test de Lecture," and the "Test de Rendement," while grade four French-oriented students fail to support it. Meanwhile, Table 6 shows that both subgroups at grade four have been exposed to the program for approximately the same period of time, therefore reducing the chances of finding a significant difference between these two subgroups.

With regard to the fifth hypothesis which affirmed that French-oriented students in the PCDF will achieve higher than a norm group of English students in the French Immersion Program, the grade six French-oriented students supported the hypothesis, while grade four French-oriented students rejected it (see Table 5b).

These results are not surprising, since grade four French-oriented students, as shown in Table 8 have been exposed in the overall to a

lesser extent to formal French instruction than English-speaking students in French Immersion Programs who have been exposed to formal French instruction since Kindergarten (see Tests de lecture, p. 1). In terms of years, the difference found is almost two years. Furthermore, Table 12 shows that the French-oriented students have been living in an Anglophone milieu for almost the same period of time as the typical English-speaking students, suggesting that exposure to formal French instruction prior to PCDF was non significant. This information helps in explaining these findings at grade four.

The findings concerning the sixth hypothesis shown in Table 5b were also expected. The English-oriented students in the PCDF at both grades four and six did not achieve higher than the English-oriented students in the French Immersion Program on a measure of French achievement as stipulated in the hypothesis. Table 8 shows that English-oriented students in the PCDF have been exposed to this program for an average of two years and seven months at grade six, and of two years and three months at grade four, in terms of school years. Furthermore, the former group has been exposed to formal English instruction for an average of two years and four months and for an average of seven months for the latter group as shown in Table 9. On an overall basis, the French Immersion students have received more formal French instruction than the PCDF students. This information aids in explaining the results. The seventh hypothesis dealt with the amount of exposure to the program. Grade six French-oriented students achieved higher than grade six French Immersion students on the "Test de Lecture" as shown in Table 5b which

therefore confirmed the hypothesis. However grade six English-oriented students in the PCDF achieved as well as a norm group of French Immersion students and thus, rejected the hypothesis. The explanations given in the previous paragraph should also be considered in the analysis of the results with regard to English-oriented students in the PCDF. Concerning the eight hypothesis, both subgroups English-oriented and French-oriented students at grade six enrolled in the PCDF, as shown in Table 5a achieved as well as a norm group of grade six English-speaking students, in the REP, on the Gates-MacGinitie test. Therefore, the hypothesis is supported. It has to be noticed however, that the results of the English-oriented subgroup at grade six surpassed by far the expectations formulated in this hypothesis.

Other analyses have been conducted on the "Amount of Exposure to the Program" as well as on the number of "Years spent in an Anglophone milieu." The results reported in Table 6 for grade four students concerning the first variable suggest that this variable does not influence statistically the results on the English Test. However, the results on the "Test de Lecture" are shown to be significantly affected while those on the "Test de Rendement" are not far from being significantly affected ($p = 0.06$), suggesting that a higher level of exposure would have influenced the results significantly. No subgroup effect is reported. At grade six, this variable seems to be of no statistical significance on the English and the French tests. However, a significant subgroup effect is reported, meaning that both low-exposure and high-exposure English-oriented students succeeded better on the Gates-MacGinitie, than

low-exposure and high-exposure French-oriented students. A reversal took place in the French tests.

An explanation of the results is found in Tables 8 and 9. At grade four, a subgroup effect could not have been possibly expected, since the two subgroups are quite similar in terms of total exposure to both languages English and French. Therefore, these two subgroups will benefit from an exposure to the PCDF, and will probably progress at the same pace. However, grade six students offer some differences in terms of amount of exposure to REP, as well as in terms of amount of years spent in an Anglophone milieu, accounting therefore for a subgroup effect. A program effect could not be expected, since these two subgroups have only been exposed to PCDF for a small reduced amount of time as shown in Table 8.

The second variable mentioned above was "Number of years spent in an Anglophone milieu". The results of analyses of covariance given in Table 10 for grade four students show no "Years" effect as well as no subgroup effect. The explanations provided in the previous paragraph can be applied also to this variable, with respect to grade four students. However, at grade six, a low exposure to an Anglophone milieu seems to affect significantly the scores on the "Test de Rendement." No subgroup effect takes place. Information given in Table 12 concerning the grade six French-oriented and English-oriented students shows that the former subgroup has still been living in an Anglophone milieu for an average of 7-1/2 years, therefore, reducing the possibility of a subgroup effect on the three dependent variables. It has to be also added

that half of the French-oriented students at grade six, have been in an Anglophone milieu for an average of 10 to 11 years.

In an attempt to find out which of the variables discussed above has more influence on the results of the three tests, multiple regression analyses have been done. The results displayed in Table 13 show that the variable "Years" weighs more than the variable "Expo" on two tests out of three. However, it has to be remembered that the variable "Expo" is not given a fair treatment, since the students in the PCDF have not been in the Program long enough. Table 13 indicates that the variable "Years" accounts for 16% of the variance in the "Gates-MacGinitie", whereas the variable "Expo" accounts for only 0.8 of 1%, and for 2% in the "Test de Rendement", while the variable "Expo" accounts for a little bit more, i.e. 4%. In the overall, it seems that the variable "Years" has more influence in the Gates-MacGinitie, and less influence in the "Test de Rendement," the results of which are consistent with those given in Table 11. Concerning the variable "Expo", these results are in the same direction as the results of grade six students shown in Table 7.

The results of analyses of covariance conducted on the "Dominant-Francophone" and the "Mixed" students given in Table 14, show that this independent variable has no effect on any of the tests. However a grade effect is found on the "Gates-MacGinitie", and on the "Test de Rendement" meaning that there is an increase in the scores on these two tests from grade four to grade six, regardless of the linguistic dominance. It has to be pointed out that the scores on the "Test de Lecture"

are not reliable, since half of the students in grade four were administered the same test in the previous spring. Furthermore, it is almost impossible to ensure what proportion of a practice effect is left over the summer holidays. Another point worth mentioning is that the term "Dominance," in the context of the current study, may be a misleading variable, since at both grades four and six, the lowest level of Exposure to an Anglophone milieu ranges from one to five years. Furthermore, students have been classified on these two variables according to their parents' answers on the use of French at home, which might not reflect the use of French by the children. Furthermore, too, one wonders if this question does not imply a response based on social desirability, rather than actuality.

Further comparisons have been attempted between the scores obtained on French and English tests by means of an analysis of covariance with the cognitive ability partialed out. Results given in Table 15 suggest trends in the direction of a positive relationship with the exception of grade four French-oriented students whose results show a negative relationship. However, the historical complexity of the nature of this subgroup may account for this finding. Another possible relationship has been investigated between the scores on the Cognitive Ability Test, and the scores on the three dependent variables. However, the ambiguity of the results given in Table 16 does not allow any definitive statement to be made, although a trend towards a positive relationship is identified.

3. Conclusions

The French program in a minority situation (PCDF) according to the findings discussed previously, seems to be successful in generating an additive form of bilingualism. This additive form is expressed on both English and French test results. Both subgroups do not experience any hindrance in their English skills compared to a norm group of English-speaking students in the Regular English Program.

On the French measures used, grade six French-oriented students obtained good results, especially when compared to native-speakers of French, and these results may be particularly considered impressive when their low amount of exposure to PCDF is remembered. In contrast, grade four French-oriented students' performance is rather unexpected, but the analysis of their academic background explains this finding. It is to be expected that, at the grade six level, these grade four students will achieve as well as the ones actually in the program, as a result of exposure to the program.

The results achieved by English-oriented students in French tests at grade six represent quite an accomplishment when taking into account their low amount of exposure to the program. They seem to achieve as well as the English-speaking children in French Immersion, and compared to native-speakers of French, they appear to perform at an acceptable level, considering the factor "exposure" described above. At grade four, English-oriented students achieve as well as the English-speaking children in the French Immersion Program. However, caution is warranted when accepting this result for reasons of practice effect mentioned

earlier. Compared to native speakers of French, their results are similar to French-oriented students and therefore, are also expected to show an improvement through the years.

At this point of discussion, a question may arise which can be expressed as follows: Does the PCDF provide the students with all the requirements needed to attain a "true" bilingualism? This question cannot be adequately answered by this study, since this study could not give an accurate account of this program for reasons previously mentioned. Furthermore, the limited range of tests used in the study could not provide a complete picture of students' linguistic skills. However, the results at grade six are encouraging, as they show a trend in that direction. It seems that both subgroups benefit from such a program. With respect to English-oriented students, they need more formal French instruction than French-oriented students, and a program which offers an intensive French instruction completed by a 20% of formal English instruction is likely to help them in attaining this goal. Concerning the French-oriented students, their results at grade six on French measures are promising, and it is expected that with 20% of intensive formal English instruction, their results in English will improve, leading them on the path towards bilingualism.

To sum up, it seems reasonable to assume that for the time being, this learning experience seems to benefit both English-oriented and French-oriented students and to provide them with the necessary requirements to develop a "true" bilingualism.

Before ending this discussion, it might be appropriate to relate the results to the findings of previous research reported in the first

chapter. Generally, it appears that the results of the English-oriented students in the study are consistent with the findings reported by other researchers interested in majority-language children engaged in second-language learning (Lambert & Tucker 1972; Gray 1981; Shapson & Day 1982). The students in the study do not experience any impediment in the acquisition of their first language. Further, they make adequate gains in their second language considering their low exposure to second language instruction. However, it is inadvisable to directly compare the results of the students in the study with those of the students in French Immersion Programs, since the degree of exposure to the second language for the two groups differs considerably.

The results of the French-oriented students in this study generally corroborate the findings of previous research conducted on minority-language children (Skutnabb-Kangas & Toukomaa, 1976; Carey & Cummins 1978). The students in the study achieved as well as the English-speaking children in the Regular English Programs on a measure of English. In French achievement, grade six French-oriented students in the study showed significant difference from grade six English-oriented students, while at grade four, for reasons previously mentioned, French-oriented students did not show significant difference from grade four English-oriented students.

However, it must be noted that the small size of the sample did not allow the researcher to classify the students according to Carey and Cummins' three categories. Therefore, the combination of students from both "mixed" linguistic background and "dominant-Francophone "linguistic

background might have helped to contribute to positive results in English achievement. On the other hand, in French achievement, the results might be seen to be more impressive for grade six students, and more acceptable for grade four students due to this aggregate.

4. Limitations:

In this study, students in the PCDF have been compared to norm groups of students enrolled in French Immersion Programs as well in Regular English Programs. A preliminary plan for the present study aimed at investigating skills levels of the Francophone population enrolled in three different programs of instruction, the PCDF, the EIP, and the REP. The PCDF students would have made up an experimental group, while students in the other programs would have formed control groups. These three groups would have been tested in French and in English, on reading comprehension and vocabulary skills. However, this plan was not used for the study, because one major school district decided not to participate invoking loss of instructional time and possible lack of interest from parents as reasons for non participation. Therefore, the researcher was able to study only students in the PCDF program; the two groups of students in this program could only be compared with norms for comparable students in the REP, and the EIP programs.

This study has provided information about a French program in a minority situation. However, this study is not a longitudinal one and, as such, cannot pretend to be as accurate. For the time being, since

the program is still in its infancy, in B.C. it is impossible to carry out longitudinal studies. In addition to this, the French-oriented population to which this program is addressed, is composed of families who have elected to settle in B.C., and also of families whose choice on a place of settlement is not definitive, and who are bound for other destinations. This variability in the population accounts for the difficulty in finding a reasonable sized sample of students who have been attending the program since grade one.

Results reported in Table 14 suggest that the frequency of the use of French at home does not influence the scores either in French achievement or in English achievement. These results seem to contradict the findings reported by those researchers who observed on the basis of their study that the better a child preserves his mother tongue, the better he succeeds at school in his first language, and the better he is at learning a second language. However, the results in the present study should not be taken at face value because of the insufficient number of students in each cell as well as a lack of rigorous discrimination between the two samples. One will remember that the classification in this study was determined by parents' questionnaires, suggesting the possibility of a response based on social desirability. To counteract this possible factor, students' questionnaires should be used in further research for the purpose of establishing this classification.

Another question that is difficult to address in this study is the effect of integration of anglophone and francophone students. Since

most of the schools in the study were comprised of these two linguistic subgroups, the researcher did not have any point of comparison. In order to measure adequately either the gain or loss of French for Anglophone and Francophone as well the gain or loss of English for Anglophone and Francophone, samples of 'pure' Francophone and 'pure' Anglophone are needed. These two samples when exposed to the same program of instruction for the same period of time can serve as points of reference. These conditions may be difficult to fulfill in B.C. where large concentrations of Franco-Colombians are not numerous.

Furthermore, it must be mentioned that the Educational Background of the parents on the average was 12.8 years for the French-oriented subgroup, and 14.4 years for the English-oriented subgroup. This difference of almost 2 years between the two subgroups must be indicated as it might have influenced the results. Another difference lies in the variability across schools in terms of time allotment to formal English instruction which ranges from no instruction or little in grade one to grade three, to 5% up to 20% from grade three to grade seven. This variability should be considered when analysing the results.

Other limitations about the program which should be indicated are: 1) the Programme-Cadre-de-Francais is only six years old, and as a result is still developing appropriate material and curricula, 2) teachers in the PCDF are confronted with special teaching conditions such as the teaching of multilevel classes, and the wide range of students' linguistic abilities. These considerations when kept in mind, help in understanding the restrictions placed on the generalizability of the results.

5. Implications:

However, the study has investigated the current situation of the program, at grades four and six. According to December 1983 figures of school attendance in the PCDF the samples analyzed in this study account for 21.3% of the PCDF fourth graders in B.C., and for 25.4% of the PCDF sixth graders in B.C. In British Columbia, it may be suggested that the actual picture of the PCDF will remain the same in the future, since the French-oriented population in the PCDF is likely to show the same characteristics described above. Therefore it could be recommended that the trends of this study in terms of long term effects might merit attention.

At the secondary level, both subgroups will face a choice whether to register in an English Program or to continue in a PCDF program. In the event that the French-oriented subgroups chooses to attend a Regular English Program, it may be expected that once provided with intensive formal English instruction, they will close the gap observed at grade six between their scores, and the scores obtained by English-oriented students, but one cannot predict the loss they will experience in French. The question is: Is the amount of French instruction received in Elementary school sufficient enough to prevent these students from a severe regression in French when deprived of this instruction? On the other hand, the choice of attending a PCDF program will likely lead them towards high levels of proficiency in French, but in this situation is a percentage of 20% formal English instruction large enough to provide these students with appropriate English skills, when they will have to

compete with students instructed solely in English at university level.

The English-oriented subgroup will also have the same choice. In the event that they choose to stay in a PCDF program, intensive formal French instruction will help them to close the gap observed at grade six between their scores and the scores obtained by French-oriented students. However, the same concerns mentioned earlier with regard to French-oriented students' English proficiency apply, although to a lesser extent, to their situation. The question here is: When these students compete at university level with students only instructed in English, how successful will they be?

These questions will have to be investigated in further research at a later time, when the number of students at the secondary level make a study feasible. Until then, research should concentrate on the same sample in the subsequent grades, and evaluate the performance of the two subgroups in both languages. It will be of interest, for instance, to verify if English-oriented students, supported by their linguistic background, maintain their achievement in English at the same level even with only 20% of formal English instruction. Moreover, it will be interesting to verify if French-oriented students, with this percentage of formal English instruction will still achieve as well as English-speaking students in a Regular English program? In French, research is also needed to find out in which proportion English-oriented students are going to improve their scores. The same question also applies to French-oriented students. It may also be interesting to find out if grade six French-oriented students, when at grade seven will

maintain their advantage in French over the English-oriented students in the same proportion and if English-oriented students will also maintain their advantage in English over the French-oriented students in the same proportion.

To summarize, the current study has identified trends emerging from the program under investigation. As long as these trends are not strengthened by other research, in subsequent years, looking at a more adult PCDF, there will not be a thorough evaluation of the outcomes of this program. For the benefit of both subgroups enrolled in the PCDF, in the specific setting of British Columbia, other research is needed.

On a larger scale, the present study may be seen as an indicator of the behavior of a program of instruction in the language of a minority. As such, this study may be replicated in other situations, investigating the way the language of other minorities behave compared to the specific minority-language analysed in this study.

In order to help the undertaking of further replication as well as to help to generalize the findings to other situations, the characteristics of the population in this study are redefined briefly.

**On Linguistic Background:**

The linguistic purity of the minority-language sample could not be maintained for reasons of sample size. Therefore, the combination of both the pure minority-language group and the mixed language group does not provide results that are as easily interpretable as might have been the case had these two groups been treated separately.

compete with students instructed solely in English at university level.

The English-oriented subgroup will also have the same choice. In the event that they choose to stay in a PCDF program, intensive formal French instruction will help them to close the gap observed at grade six between their scores and the scores obtained by French-oriented students. However, the same concerns mentioned earlier with regard to French-oriented students' English proficiency apply, although to a lesser extent, to their situation. The question here is: When these students compete at university level with students only instructed in English, how successful will they be?

These questions will have to be investigated in further research at a later time, when the number of students at the secondary level make a study feasible. Until then, research should concentrate on the same sample in the subsequent grades, and evaluate the performance of the two subgroups in both languages. It will be of interest, for instance, to verify if English-oriented students, supported by their linguistic background, maintain their achievement in English at the same level even with only 20% of formal English instruction. Moreover, it will be interesting to verify if French-oriented students, with this percentage of formal English instruction will still achieve as well as English-speaking students in a Regular English program? In French, research is also needed to find out in which proportion English-oriented students are going to improve their scores. The same question also applies to French-oriented students. It may also be interesting to find out if grade six French-oriented students, when at grade seven will

maintain their advantage in French over the English-oriented students in the same proportion and if English-oriented students will also maintain their advantage in English over the French-oriented students in the same proportion.

To summarize, the current study has identified trends emerging from the program under investigation. As long as these trends are not strengthened by other research, in subsequent years, looking at a more adult PCDF, there will not be a thorough evaluation of the outcomes of this program. For the benefit of both subgroups enrolled in the PCDF, in the specific setting of British Columbia, other research is needed.

On a larger scale, the present study may be seen as an indicator of the behavior of a program of instruction in the language of a minority. As such, this study may be replicated in other situations, investigating the way the language of other minorities behave compared to the specific minority-language analysed in this study.

In order to help the undertaking of further replication as well as to help to generalize the findings to other situations, the characteristics of the population in this study are redefined briefly.

<u>On Linguistic Background</u>:

The linguistic purity of the minority-language sample could not be maintained for reasons of sample size. Therefore, the combination of both the pure minority-language group and the mixed language group does not provide results that are as easily interpretable as might have been the case had these two groups been treated separately.

Furthermore, the minority-language students investigated in the study indicate a variability of linguistic patterns on their questionnaires. This variability is perhaps accounted for by the lack of support from the environment, since these families do not live within "enclaves".

**On Educational Background:**

The parents of students in each of the linguistic subsample were above Canadian norms for level of Educational linguistic background. Furthermore, parents of grade six English-oriented students ranked almost two years higher than parents of French-oriented students at the same grade level, while parents of grade four English-oriented students ranked one year higher than parents of French-oriented students at the same grade level.

**On Cognitive Ability:**

Compared to Canadian norms, the French and English-oriented higher grade students and the English-oriented lower grade students scored at the average level. However, the French-oriented lower grade students scored well below average level. At both grade levels, the majority-language students appear to score higher than the minority-language students on general cognitive ability.

To sum up, this study may be generalized to other situations provided that samples are matched on the above mentioned characteristics, and that the program of instruction under investigation is at the

same stage of development as the program in this study. This study should be replicated by researchers looking at other minority and majority language situations to find out whether or not the hypotheses formulated in the first chapter would be supported given the matching on characteristics.

Before concluding the implications of this study, another issue worth addressing in further research is to measure the influence of French schooling on the frequency of the use of French outside of the classroom. Mougeon and Canale (1978-1979) found

> that French language schooling does not seem to have had a strong effect on the student's use of the French language .... that French language schools located in predominantly English-speaking Ontarian communities will experience more difficulties in having their students reach a satisfactory level of French language mastery than French language schools serving Franco-Ontarian majority communities (p. 32).

This observation leads one to speculate on the situation of the French language in British Columbia, where Franco-Colombian majority communities are practically inexistent. Therefore, the following question may come to mind: "Is education in French enough to maintain the French language in British Columbia?" Answers on students' questionnaires already provided some information on this matter, but additional data are required in order to answer this question adequately. Further research should therefore concentrate also on this this important issue.

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## Appendix A

## Questionnaire destiné aux élèves/students' questionnaires

## Questionnaire écrit/Written Questionnaire and Summary of the Answers

1. Nom/Name _____

2. Adresse/Address: _____
_____
_____

3. Date de naissance/Date of birth: jour/day _____

mois/month _____ année/year _____

4. a) Année scolaire/grade: 4 _____ 6 _____

b) Nom de l'école/Name of school: _____

5. Sexe/sex: M _____ F _____

6. Dans quelle langue est-ce que tu parles aux personnes qui prennent soin de toi, mais qui travaillent à l'extérieur?/In which language do you speak to the people who are responsible for you and who work out?

* ne s'applique pas dans mon cas/does not apply to me _____

a) Tout le temps en français/Always in French _____

b) Souvent en français/Often in French _____

c) Autant en français qu'en anglais/As much in French as in English _____

d) Souvent en anglais/Often in English _____

e) Tout le temps en anglais/Always in English _____

7. Dans quelle langue est-ce que tu parles aux personnes qui prennent soin de toi, et qui restent à la maison/In which language do you speak to the people who are responsible for you, but do not work out?

* ne s'applique pas dans mon cas/does not apply to me _____

a) Tout le temps en français/Always in French _____

b) Souvent en français/Often in French _____

c) Autant en français qu'en anglais/As much in French as in English _____

d) Souvent en anglais/Often in English _____

e) Tout le temps en anglais/Always in English _____

8. Dans quelle langue est-ce que les personnes qui prennent soin de toi à la maison se parlent entre eux?/In which language do the people who are responsible for you speak to each other?

* ne s'applique pas dans mon cas/does not apply to me _____

a) Tout le temps en français/Always in French _____

b) Souvent en français/Often in French _____

c) Autant en français qu'en anglais/As much in French as in English _____

d) Souvent en anglais/Often in English _____

e) Tout le temps en anglais/Always in English _____

9. Quand tu es à la maison, dans quelle langue est-ce que tu parles à ton/tes frère(s) et soeur(s)?/When at home, in which language do you speak to your brother(s) and sister(s)?

* ne s'applique pas dans mon cas/does not apply to me _____

a) Tout le temps en français/Always in French _____

b) Souvent en français/Often in French _____

c) Autant en français qu'en anglais/As much in French as in Engli[illegible] _____

d) Souvent en anglais/Often in English _____

e) Tout le temps en anglais/Always in English _____

10. Quand tu joues chez toi, dans quelle langue est-ce que tu parles à tes amis(es)?/When you are playing with your friends at your house, in which language do you speak to them?

* ne s'applique pas dans mon cas/does not apply to me _____

a) Tout le temps en français/Always in French _____

b) Souvent en français/Often in French _____

c) Autant en français qu'en anglais/As much in French as in English _____.

d) Souvent en anglais/Often in English _____

e) Tout le temps en anglais/Always in English _____

## Summary of the Answers on Each Question

6. Dans quelle langue est-ce que tu parles aux personnes qui prennent soin de toi, mais qui travaillent à l'extérieur?/In which language do you speak to the people who are responsible for you and who work out?

| | Grade 4 | | Grade 6 | |
|---|---|---|---|---|
| | French-Oriented Students (n = 14) | English-Oriented Students (n = 20) | French-Oriented Students (n = 15) | English-Oriented Students (n = 14) |
| | [%] | [%] | [%] | [%] |
| * | 0 | 0 | 1 = 6.7 | 1 = 7.14 |
| a) | 3 = 21.4 | - | 5 = 33.3 | 0 |
| b) | 4 = 28.6 | 2 = 10 | 2 = 13.3 | 1 = 7.14 |
| c) | 3 = 21.4 | 2 = 10 | 2 = 13.3 | 1 = 7.14 |
| d) | 0 | 3 = 15 | 1 = 6.7 | 3 = 21.4 |
| e) | 4 = 28.6 | 13 = 65 | 4 = 26.7 | 8 = 57.14 |

7. Dans quelle langue est-ce que tu parles aux personnes qui prennent soin de toi, et qui restent à la maison/In which language do you speak to the people who are responsible for you, but do not work out?

| | Grade 4 | | Grade 6 | |
|---|---|---|---|---|
| | French-Oriented Students (n = 14) | English-Oriented Students (n = 20) | French-Oriented Students (n = 15) | English-Oriented Students (n = 14) |
| | [%] | [%] | [%] | [%] |
| * | 0 | 1 = 5 | 3 = 20 | 1 = 7.14 |
| a) | 5 = 35.7 | 0 | 4 = 26.7 | 0 |
| b) | 3 = 21.4 | 0 | 2 = 13.3 | 0 |
| c) | 1 = 7.1 | 2 = 10 | 2 = 13.3 | 1 = 7.14 |
| d) | 2 = 14.3 | 3 = 15 | 1 = 6.7 | 1 = 7.14 |
| e) | 3 = 21.4 | 14 = 70 | 3 = 20 | 11 = 78.6 |

8. Dans quelle langue est-ce que les personnes qui prennent soin de toi à la maison se parlent entre eux?/In which language do the people who are responsible for you speak to each other?

| | Grade 4 | | Grade 6 | |
|---|---|---|---|---|
| | French-Oriented Students (n = 14) | English-Oriented Students (n = 20) | French-Oriented Students (n = 15) | English-Oriented Students (n = 14) |
| | [%] | [%] | [%] | [%] |
| * | 0 | 0 | 3 = 20 | 1 = 7.14 |
| a) | 4 = 28.6 | 0 | 5 = 33.3 | 0 |
| b) | 2 = 14.3 | 1 = 5 | 0 | 0 |
| c) | 0 | 1 = 5 | 1 = 6.7 | 0 |
| d) | 2 = 14.3 | 2 = 10 | 21 = 13.3 | 1 = 7.14 |
| e) | 6 = 42.8 | 16 = 80 | 4 = 26.7 | 12 = 85.7 |

9. Quand tu es à la maison, dans quelle langue est-ce que tu parles à ton/tes frère(s) et soeur(s)?/When at home, in which language do you speak to your brother(s) and sister(s)?

| | Grade 4 | | Grade 6 | |
|---|---|---|---|---|
| | French-Oriented Students (n = 14) | English-Oriented Students (n = 20) | French-Oriented Students (n = 15) | English-Oriented Students (n = 14) |
| | [%] | [%] | [%] | [%] |
| * | 1 = 7.1 | 1 = 5 | 2 = 13.3 | 0 |
| a) | 3 = 21.4 | 0 | 3 = 20 | 0 |
| b) | 1 = 7.1 | 1 = 5 | 0 | 1 = 7.14 |
| c) | 2 = 14.3 | 4 = 20 | 0 | 1 = 7.14 |
| d) | 1 = 7.1 | 2 = 10 | 4 = 26.7 | 5 = 35.7 |
| e) | 6 = 42.8 | 12 = 60 | 6 = 40 | 7 = 50 |

10. Quand tu joues chez toi, dans quelle langue est-ce que tu parles à tes amis(es)?/When you are playing with your friends at your house, in which language do you speak to them?

| | Grade 4 | | Grade 6 | |
|---|---|---|---|---|
| | French-Oriented Students (n = 14) | English-Oriented Students (n = 20) | French-Oriented Students (n = 15) | English-Oriented Students (n = 14) |
| | [%] | [%] | [%] | [%] |
| * | 0 | 0 | 0 | 0 |
| a) | 2 = 14.3 | 0 | 0 | 0 |
| b) | 0 | 0 | 1 = 6.7 | 0 |
| c) | 2 = 14.3 | 2 = 10 | 1 = 6.7 | 0 |
| d) | 2 = 14.3 | 4 = 20 | 2 = 13.3 | 1 = 7.14 |
| e) | 8 = 57.1 | 14 = 70 | 11 = 73.3 | 13 = 92.8 |

Note: Figures in parentheses are numbers of students in each cell.

## Appendix B (French version)

### Questionnaire destiné aux parents

S.V.P. répondre aux questions suivantes par un (x)

1. Langue maternelle du père ou du gardien: français: ____
   anglais: ____
   autre: ____

2. Langue maternelle de la mère ou de la gardienne: français: ____
   anglais: ____
   autre: ____

3. Langue seconde du père ou du gardien: français: ____
   anglais: ____
   autre: ____

4. Langue seconde da la mère ou de la gardienne: français: ____
   anglais: ____
   autre: ____

5. Degré d'utilisation du français à la maison:

   Toujours: ____
   Souvent: ____
   Moitié français, moitié anglais: ____
   Un peu: ____
   Jamais: ____

   N.B. Les questions #6 et, #7 sont importantes pour cette recherche, mais néanmoins sont laisseés à votre discrétion. Merci.

6. Formation académique du père ou du gardien: (years)

   secondaire: 1 ____ 2 ____ 3 ____ 4 ____
   CEGEP: 1 ____ 2 ____ 3 ____
   Université: 1 ____ 2 ____ 3 ____ 4 ____
   Autre: _____

7. Formation académique de la mère ou de la gardienne: (years)

   secondaire: 1 ____ 2 ____ 3 ____ 4 ____
   CEGEP: 1 ____ 2 ____ 3 ____
   Université: 1 ____ 2 ____ 3 ____ 4 ____
   Autre: _____

8. Nombre d'années que votre enfant a passées dan un milieu francophone ou/et anglophone depuis sa naissance:

   a. milieu francophone dans une province ou pays francophone _____

   b. milieu francophone dans une province ou pays anglophone _____

   c. milieu anglophone dans une province ou pays francophone _____

   d. milieu anglophone dans une province ou pays anglophone _____

9. Ce tableau représente les années que votre enfant a passées dans le programme en cours, et aussi les années qu'il a passées dans des programmes antérieurs:

| | Kg. | 1e a | 2e a | 3e a | 4e a | 5e a | 6e a |
|---|---|---|---|---|---|---|---|
| Programme-Cadre-de-Français: | | | | | | | |
| Ecole d'Immersion Française: | | | | | | | |
| Ecole de langue française: | | | | | | | |
| Ecole de langue anglaise: | | | | | | | |

N.B.: S'il arrivait que votre enfant ait répété une année, veuillez l'indiquer ci-après en mentionnant l'année et le genre de programme en cours:

Programme: _____

Année: _____

## Appendix B (English version)

### Parent's Questionnaire

**Please answer the following question by a x**

1. **Mother tongue of the father or guardian:** French: ____ English: ____ Other: ____

2. **Mother tongue of the mother or guardian:** French: ____ English: ____ Other: ____

3. **Second language of the father or guardian:** French: ____ English: ____ Other: ____

4. **Second language of the mother or guardian:** French: ____ English: ____ Other: ____

5. **Use of French at home:**

   Always: ____
   Often: ____
   1/2 French 1/2 English: ____
   Sometimes: ____
   Never: ____

   N.B. Parents please note that the information requested in questions 6 and 7 is very useful and important for this research, however, if one chooses, one may elect not to answer.

6. **Educational background of the father or guardian:**

   Junior High School 8 ___ 9 ___ 10 ___
   Senior High School 11 ___ 12 ___
   University: 1 ___ 2 ___ 3 ___ 4 ___ 5 ___
   Graduate Studies: _____
   Other: _____

7. **Educational background of the mother or guardian:**

   Junior High School 8 ___ 9 ___ 10 ___
   Senior High School 11 ___ 12 ___
   University: 1 ___ 2 ___ 3 ___ 4 ___ 5 ___
   Graduate Studies: _____
   Other: _____

8. Number of years that your child spent in Francophone and/or Anglophone milieux, since his/her birth:

   a. Francophone milieu in a Francophone province or country _____

   b. Francophone milieu in an Anglophone province or country _____

   c. Anglophone milieu in a Francophone province or country _____

   d. Anglophone milieu in an Anglophone province or country _____

9. The following table represents the years that your child spent in PCDF as well as the years spent in previous programs:

| | Kg. | 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|---|---|
| Programme-Cadre-de-Français: | | | | | | | |
| French Immersion: | | | | | | | |
| French School: | | | | | | | |
| English School: | | | | | | | |

N.B.: If your child has repeated one grade, please indicate the grade and the program he/she was attending at that time:

Program: _____

Grade: _____

## Appendix C

### Reliability Coefficients for the Gates-MacGinitie Test
(Decimal Points Omitted)

| Test Level and Form | Grade Level | Vocabulary | Comprehension* |
|---|---|---|---|
| R1 | 1.2 | - | 87 |
| A2 | 1.5 | 91 | 92 |
| B1 | 2.2 | 92 | 92 |
| C1 | 3.2 | 94 | 90 |
| D1 | 4.2 | 87 | 87 |
| D1 | 5.2 | 90 | 89 |
| D1 | 6.2 | 90 | 89 |
| E1 | 7.2 | 85 | 86 |
| E1 | 8.2 | 87 | 87 |
| E1 | 9.2 | 89 | 88 |
| F1 | 10.2 | 87 | 86 |
| F1 | 11.2 | 88 | 85 |
| F1 | 12.2 | 89 | 85 |

## Appendix D

## Table d'Equivalence pour les Tests de Rendement/ Conversion Table for the Tests de Rendement

### 1982-83

| Stanine | Français - 4e | Français - 6e | Français |
|---|---|---|---|
| 1 | 0 - 8 | 0 - 8 | - |
| 2 | 9 - 11 | 9 - 11 | - |
| 3 | 12 - 15 | 12 - 15 | - |
| 4 | 16 - 19 | 16 - 19 | - |
| 5 | 20 - 23 | 20 - 23 | - |
| 6 | 24 - 27 | 24 - 26 | - |
| 7 | 28 - 29 | 27 - 29 | - |
| 8 | 30 - 33 | 30 - 31 | - |
| 9 | 34 - 35 | 32 - 34 | - |

## Appendix E

### Percentile Ranks and Ranges Corresponding to Stanines (used for the Test de Rendement)

| Stanine | Percentile Rank | Percentile Range |
|---|---|---|
| 9 | 98 | 96 - 100 |
| 8 | 92.5 | 89 - 96 |
| 7 | 83 | 77 - 89 |
| 6 | 68.5 | 60 - 77 |
| 5 | 50 | 40 - 60 |
| 4 | 31.5 | 23 - 40 |
| 3 | 17 | 11 - 23 |
| 2 | 5.5 | 4 - 11 |
| 1 | 2 | 0 - 4 |

## Appendix F

## List of Test Employed

Canadian Cognitive Abilities Test (Form 1: Levels A-F; Grades 3-9). Toronto: Thomas Nelson & Sons, 1974.

Gates-MacGinitie Reading Tests (Forms 1, 2 Level D) Toronto: Nelson Canada Ltd., 1980.

Test de Lecture (Grade 3 and Grade 5 levels). Toronto: Bilingual Education Project, The Ontario Institute for Studies in Education, 1979.

Test de Rendement en Français (Grade 4 level, 1983 edition; Grade 6 level, 1983 edition). Montreal: La Commission des Ecoles Catholiques de Montréal.

POOR

QUALITY

ORIGINAL